

Service Manual

 **PIONEER®**
The Art of Entertainment

ORDER NO.
ARP2284

PROJECTION MONITOR RECEIVER

SD-P4553-K
KUX1C

SD-P455-K
KUX1C

SD-P4552-K
KUX1C

- Refer to the service manual ARP2273, SD-P4053-K /KUX1C.
- This manual is applicable to the SD-P4553-K/KUX1C, SD-P455-K/KUX1C and SD-P4552-K /KUX1C types.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC [EUROPE] N.V. Keelberglaan 1, 9120 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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IFO JUNE, 1991 Printed in Japan

1. CHARGED SECTION AND HIGH VOLTAGE GENERATING POINT

■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

■ Charged section

(Power supply primary side)

1. The primary side of the POWER SUPPLY assembly
2. AC power cord

part is the charged section.
part is the high voltage generating points other than the charged section.

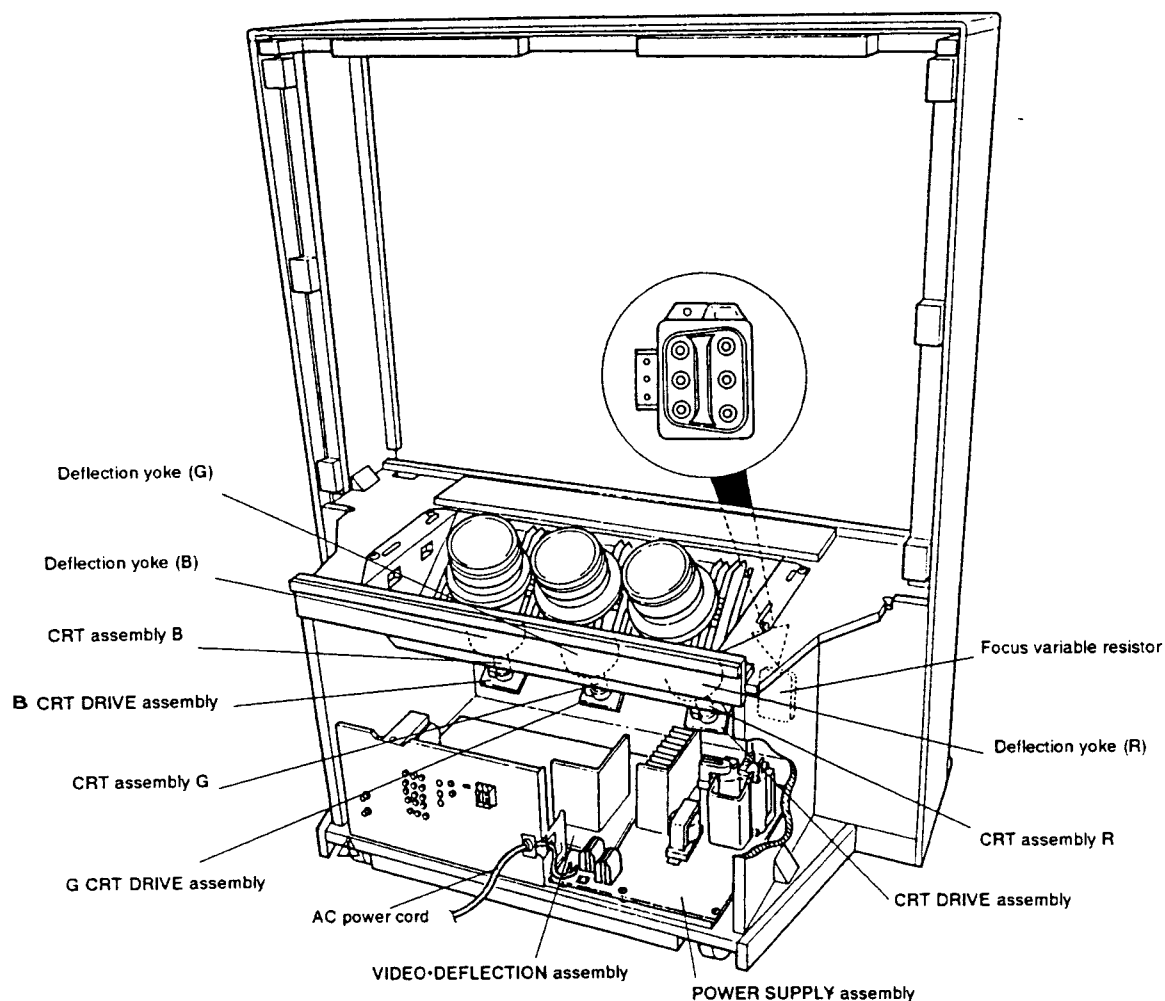


Fig.1-1 Charged section and high voltage generating point

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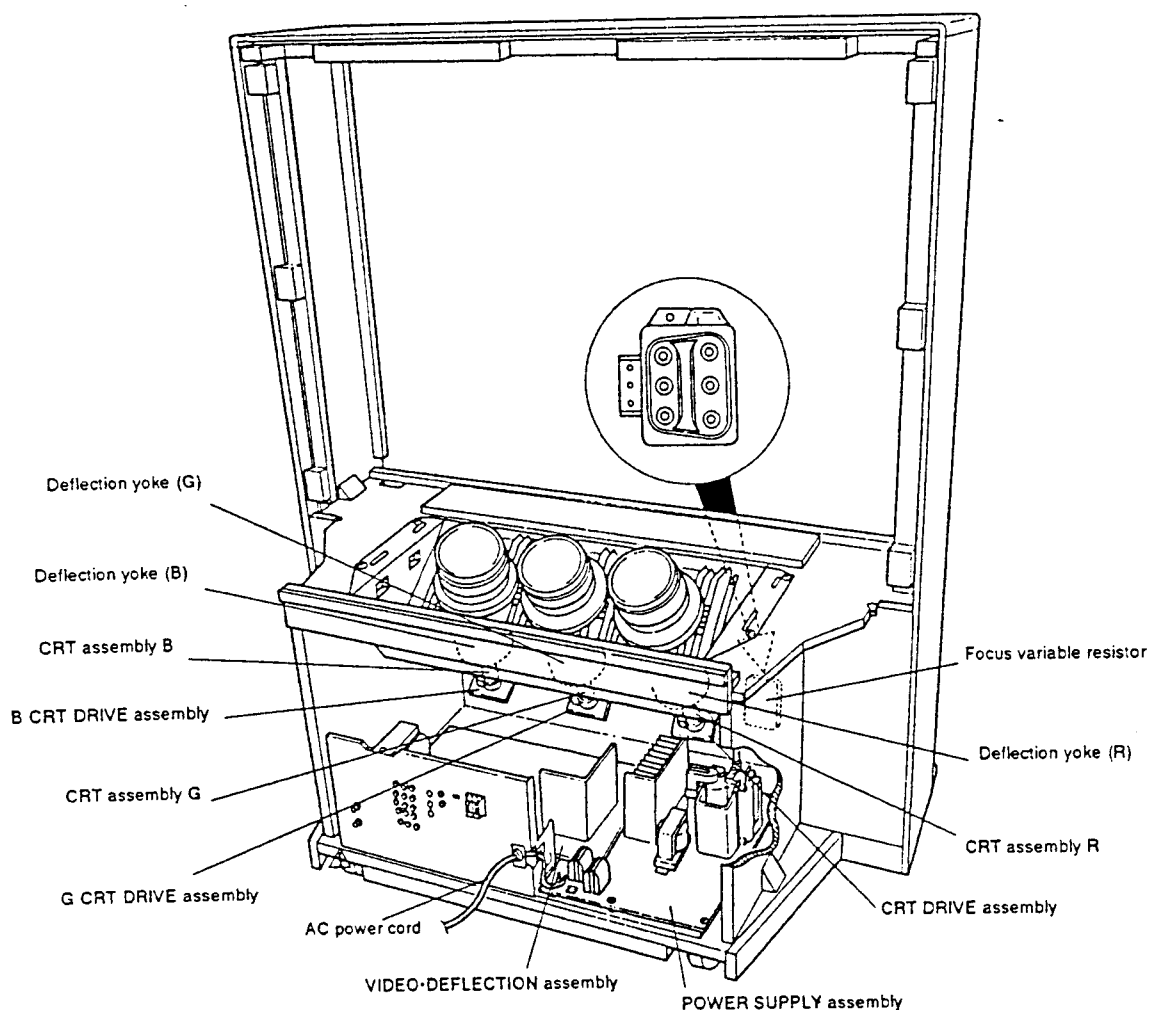


Fig.1-1 Charged section and high voltage generating point

3. EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.

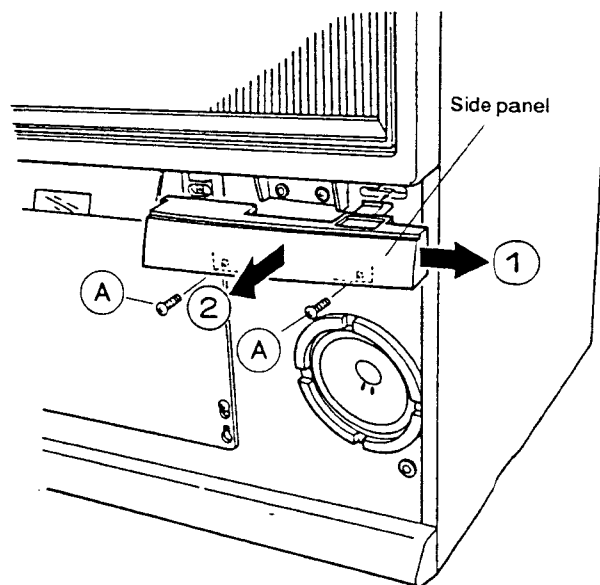
3.1 FRONT VIEW Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Door (For SD-P4553-K type)	AAN1263		24	Screw	BYC35P080FZK
	1	Door (For SD-P455-K type)	AAN1274		25	Screw	AMZ40P200FZK
	1	Door (For SD-P4552-K type)	AAN1273		26	Screw	BBZ30P080FZK
					27	Screw	VCZ30P060FMC
					28	Screw	BBZ30P120FZK
					29	Screw	ABA1126
	2	Badge	AAM1036		101	Cabinet	
	3	Indicator panel	AAK2192		102	Blind plate	
	4	Control sheet (For SD-P4553-K type)	AAK2189		103	Convergence stay	
					104	VR holder	
					105	SF holder A	
	4	Control sheet (For SD-P455-K type)	AAK2154		106	SF holder B	
	4	Control sheet (For SD-P4552-K type)	AAK2190		107	SF holder C	
	5	Control panel	AMB1793		108	Screen side cushion	
					109	Binder	
					110	Cabinet upper holder	
	6	Catcher	AEC1012				
	7	W FRONT CONTROL assembly	AWZ3542				
	8	IR RECEIVER assembly	AWZ3544				
	9	Grille R45	AMR2282				
	10	Grille mole (SD-P4553-K type only)	AAP1163				
	11	Screen frame	AMB1656				
	12	Fresnel lens	AMR2309				
	13	Lenticular sheet	AMR2310				
	14	Speaker	APV1021				
Δ	15	Focus variable resistor(VR1)	ACX1061				
	16	Side panel L (45)	AMB1794				
	17	Side panel R (45)	AMB1795				
	18	CONVERGENCE assembly	AWZ3523				
	19	Caster	AMR1256				
	20	Screw	BYC35P120FZB				
	21	Screw	BYC35P160FZK				
	22	Screw	BPZ30P120FZK				
	23	Screw	AMZ40P200FMC				

2. DISASSEMBLY OF SIDE PANEL

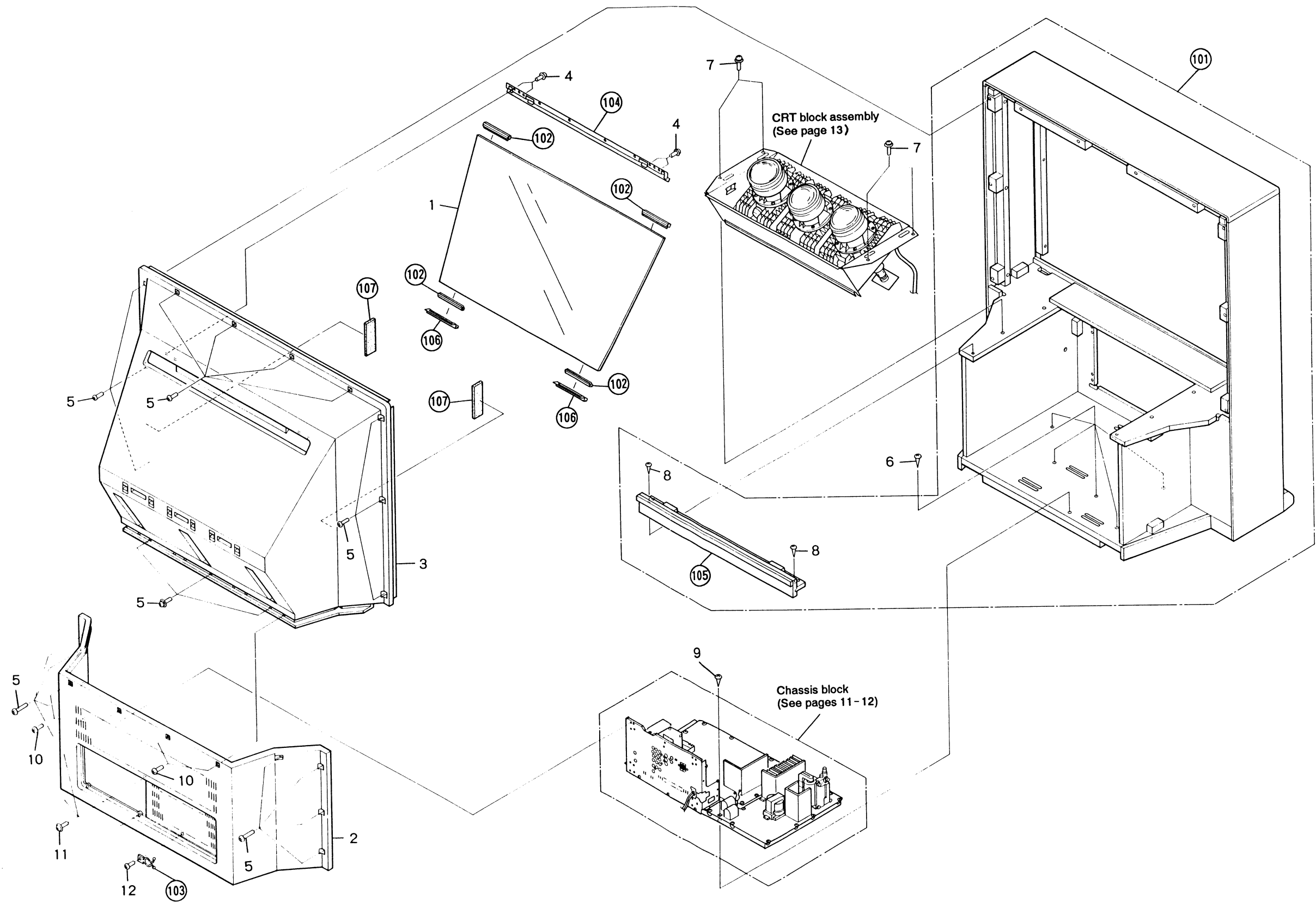
- ① Remove the Grille.
- ② Remove the two stop screws (A) from the side panel.
- ③ Move the side panel outwards in the direction of the arrow ①.
- ④ Remove the side panel in the direction of the arrow ②.

Note: This illustration shows the removal of the right side panel.
To remove the left side panel, follow the same procedure.





3.2 REAR VIEW



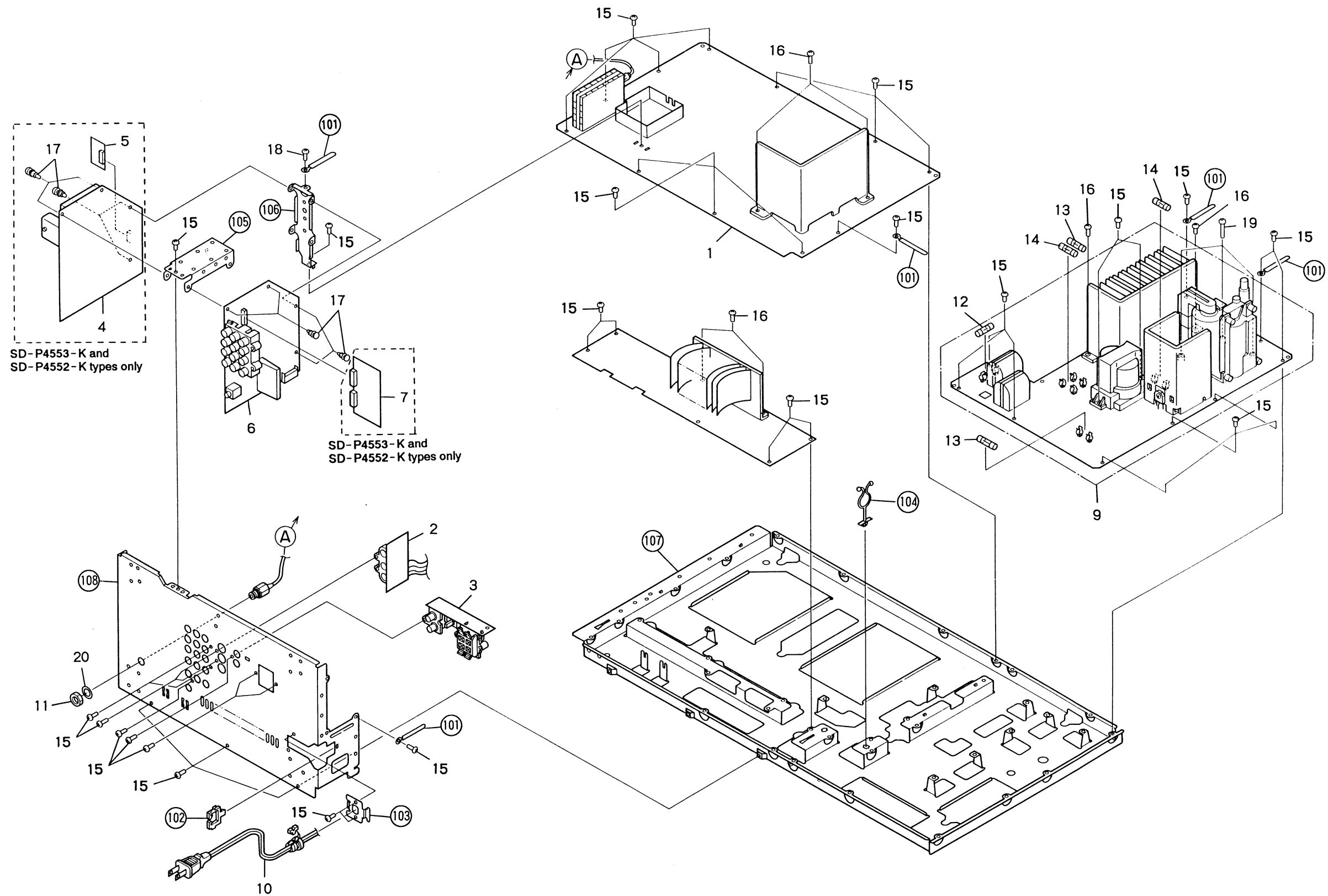
Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Mirror	AMR2172		101	Cabinet	
	2	Rear cover	AME1036		102	Mirror protector	
	3	Mirror case	AME1037		103	Cable clip	
	4	Screw	ABA1069		104	Mirror holder A	
	5	Screw	ABA1124		105	Shield plate	
	6	Screw	ABA1121		106	Mirror holder B	
	7	Screw	ABA1122		107	Mirror side cushion	
	8	Screw	ABA1080				
	9	Screw	BYC40P160FMC				
	10	Screw	VPZ40P160FZK				
	11	Screw	ABZ30P120FZK				
	12	Screw	BPZ30P120FZK				

SD-P4553-K/KUX1C, SD-P455-K/KUX1C SD-P4552-K/KUX1C

3.3 CHASSIS BLOCK Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	VIDEO•DEFLECTION assembly (For SD-P4553-K type)	AWV1175		101	Binder	
	1	VIDEO•DEFLECTION assembly (For SD-P455-K type)	AWV1172		102	Cord holder	
	1	VIDEO•DEFLECTION assembly (For SD-P4552-K type)	AWV1195		103	Cord plate	
	2	S-3P TERMINAL assembly	AWZ3532		104	Cable clip	
	3	SP TERMINAL assembly	AWZ3545		105	PCB frame	
	4	PINP assembly (SD-P4553-K and SD-P4552-K types only)	AWZ3655		106	PCB stand	
	5	PINP SUB assembly (SD-P4553-K and SD-P4552-K types only)	AWZ3656		107	Chassis	
	6	AV I/O - 3P• Y/C SEP assembly (For SD-P4553-K and SD-P4552-K types)	AWZ3529		108	Rear panel	
	6	AV I/O - 3P• Y/C SEP assembly (For SD-P455-K type)	AWZ3528				
	7	PINP SELECT assembly (SD-P4553-K and SD-P4552-K types only)	AWZ3534				
	8	AUDIO assembly	AWZ3537				
☆	9	POWER SUPPLY assembly	AWV1203				
△	10	AC power cord	ADG1056				
	11	Nut	ABN-087				
△	12	Fuse (8A, FU401)	AEK1002				
△	13	Fuse (6.3A/125V, FU403, FU405)	AEK-309				
△	14	Fuse (4A/125V, FU404, FU406)	AEK1018				
	15	Screw	BBZ30P080FZK				
	16	Screw	ABA1099				
	17	Plastic rivet	AEC-441				
	18	Screw	VCZ30P060FMC				
	19	Screw	VBZ30P200FMC				
	20	Washer	WAX0F160N100				



SD-P4553-K/KUX1C, SD-P455-K/KUX1C
SD-P4552-K/KUX1C

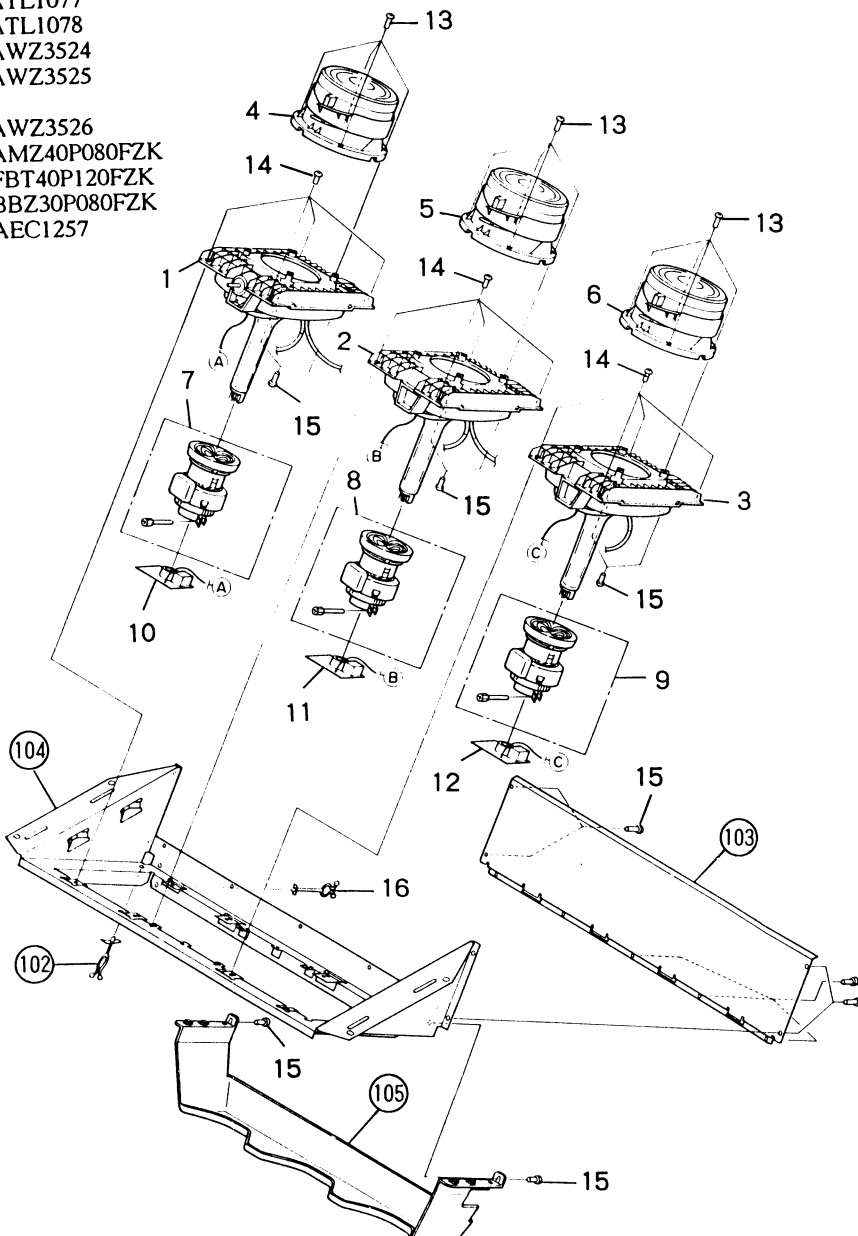
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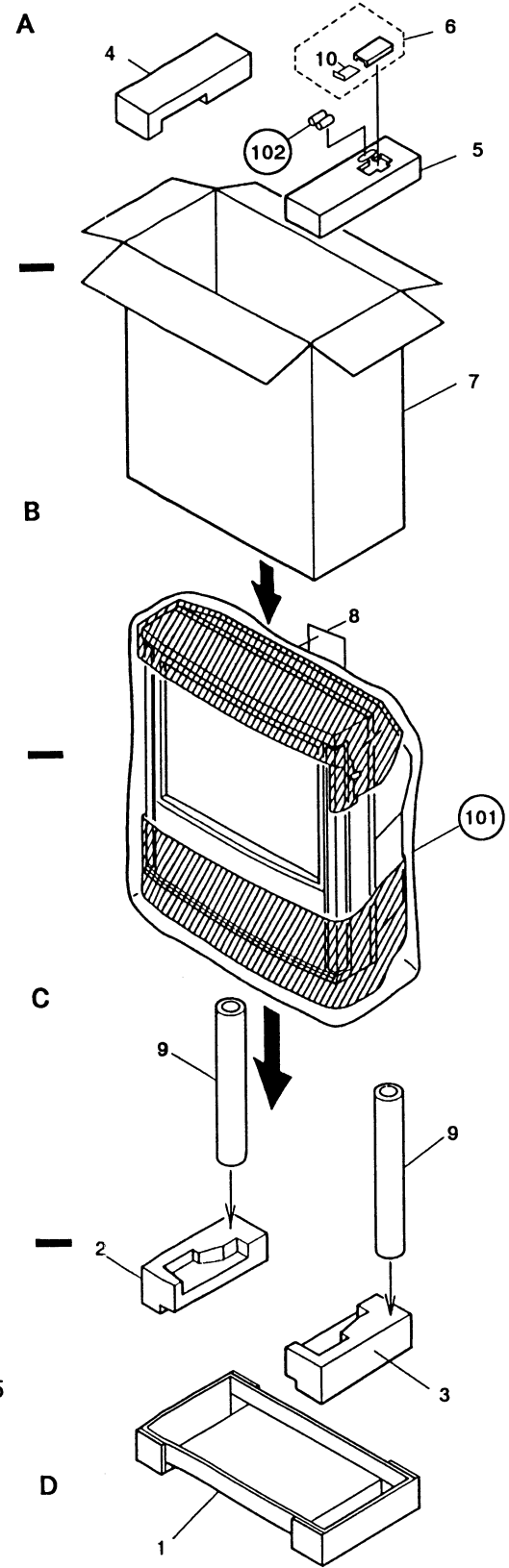
3.4 CRT ASSEMBLY BLOCK

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
△☆	1	CRT assembly R	AWY1131	101	.....		
△☆	2	CRT assembly G	AWY1130	102	Lead clasper		
△☆	3	CRT assembly B	AWY1132	103	Cover L		
☆	4	Lens assembly 50 (R)	AMR2163	104	CRT stand		
☆	5	Lens assembly 50 (G)	AMR2164	105	Tray		
		(For SD-P4553-K and SD-P455-K types)					
☆	5	Lens assembly 50 (R)	AMR2163				
		(For SD-P4552-K type)					
☆	6	Lens assembly 50 (B)	AMR2165				
		(For SD-P4553-K and SD-P455-K types)					
☆	6	Lens assembly 50 (B)	AMR2163				
		(For SD-P4552-K type)					
△	7	Deflection yoke(L1)	ATL1076				
△	8	Deflection yoke(L2)	ATL1077				
△	9	Deflection yoke(L3)	ATL1078				
	10	R. CRT DRIVE assembly	AWZ3524				
	11	G. CRT DRIVE assembly	AWZ3525				
B	12	B. CRT DRIVE assembly	AWZ3526				
	13	Screw	AMZ40P080FZK				
	14	Screw	FBT40P120FZK				
	15	Screw	BBZ30P080FZK				
	16	Cord holder	AEC1257				

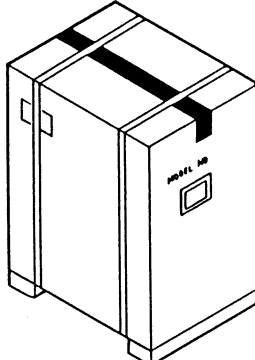


4. PACKING



Parts List

Mark	No.	Description	Part No.
	1	Under carton	AHD1869
	2	Under pad L	AHA1340
	3	Under pad R	AHA1341
	4	Upper pad L	AHA1338
	5	Upper pad R	AHA1339
	6	Remote control unit (CU-SD044)	AXD1199
		(For SD-P4553-K type)	
	6	Remote control unit (CU-SD046)	AXD1201
		(For SD-P4552-K type)	
	6	Remote control unit (CU-SD050)	AXD1210
		(For SD-P455-K type)	
	7	Upper carton (For SD-P4553-K type)	AHD2037
	7	Upper carton (For SD-P4552-K type)	AHD2038
	7	Upper carton (For SD-P455-K type)	AHD2039
	8	Operating instructions (English)	ARB1308
		(For SD-P4553-K type)	
	8	Operating instructions (English)	ARB1307
		(For SD-P455-K type)	
	8	Operating instructions (English)	ARB1305
		(For SD-P4552-K type)	
	9	Spiral tube	AHB1055
	10	Battery cover [For AXD1199(CU-SD044) and AXD1201(CU-SD046) types]	AZN1970
	10	Battery cover [For AXD1210(CU-SD050) type]	PZN1001
	101	Packing bag	
	102	Alkaline dry cell battery (LR6, AA)	
		(For SD-P4553-K and SD-P4552-K types)	
	102	Dry cell battery (R03, AAA)	
		(For SD-P455-K type)	



5. ELECTRICAL PARTS LIST

5.1 CONTRAST OF MISCELLANEOUS PARTS

NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.

The SD-P4553-K/KUX1C, SD-P455-K/KUX1C and SD-P4552-K/KUX1C types are the same as the SD-P4053-K/KUX1C type with the exception of the following sections.

Mark	Symbol & Description	Part No.				Remarks
		SD-P4053-K /KUX1C	SD-P4553-K /KUX1C type	SD-P455-K /KUX1C type	SD-P4552-K /KUX1C type	
	VIDEO•DEFLECTION assembly	AWV1175	AWV1175	AWV1172	AWV1195	
	AV I/O- 3P•Y/C SEP assembly	AWZ3529	AWZ3529	AWZ3528	AWZ3529	
	PINP SELECT assembly	AWZ3534	AWZ3534	• • • • •	AWZ3534	
	AUDIO•DSE assembly	AWZ3538	• • • • •	• • • • •	• • • • •	
	AUDIO assembly	• • • • •	AWZ3537	AWZ3537	AWZ3537	
	FRONT CONTROL assembly	AWZ3540	• • • • •	• • • • •	• • • • •	
	W FRONT CONTROL assembly	• • • • •	AWZ3542	AWZ3542	AWZ3542	
	IR RECEIVER assembly	AWZ3543	AWZ3544	AWZ3544	AWZ3544	
	FRONT INPUT TERMINAL assembly	AWZ3547	• • • • •	• • • • •	• • • • •	
	PINP assembly	AWZ3655	AWZ3655	• • • • •	AWZ3655	
	PINP SUB assembly	AWZ3656	AWZ3656	• • • • •	AWZ3656	
Δ ☆	CRT assembly R	AWY1128	AWY1131	AWY1131	AWY1131	
Δ ☆	CRT assembly G	AWY1127	AWY1130	AWY1130	AWY1130	
Δ ☆	CRT assembly B	AWY1129	AWY1132	AWY1132	AWY1132	

SD - P4553 - K/KUX1C, SD - P455 - K/KUX1C
SD - P4552 - K/KUX1C

VIDEO•DEFLECTION ASSEMBLY(AWV1172 and AWV1195)

The VIDEO•DEFLECTION assembly (AWV1172 and AWV1195) are the same as the VIDEO•DEFLECTION assembly (AWV1175) with the exception of the following parts.

Mark	Symbol & Description	Part No.			Remarks
		AWV1175	AWV1172	AWV1195	
	IC104	PA0030	PA0030	.....	
	IC302	M6M80041P	M6M80041P	M6M80021P	
	Q139, Q141	2SC1740S	2SC1740S	.....	
	Q145	.....	.....	2SA933S	
	Q324, Q326	2SC1740S	.....	2SC1740S	
	L108 - L110	.....	.....	LAU4R7K	
	L112	LAU680K	LAU680K	.....	
	C189	CEAS010M50	CEAS010M50	.....	
	C191	.....	.....	CEAS330M16	
	C196	CCCSL180J50	CCCSL180J50	.....	
	C202, C203	CKCYB391K50	CKCYB391K50	.....	
	C204	CCDSL221J50	CCDSL221J50	.....	
	C205	CKCYB331K50	CKCYB331K50	CKCYB391K50	
	C206	.....	.....	CKCYB331K50	
	C208 - C210	.....	.....	CCCSL151J50	
	C213	CCDSL101J50	CCDSL101J50	.....	
	C214	CEAS101M10	CEAS101M10	.....	
	C215	CCDCH390J50	CCDCH390J50	.....	
	C216	CCCSL680J50	CCCSL680J50	.....	
	C217, C222	CEAS330M16	CEAS330M16	.....	
	C218	CKDYF103Z50	CKDYF103Z50	.....	
	C219	CEAS101M16	CEAS010M16	.....	
	C438	CQMA562J50	.....	CQMA562J50	
	R188	.....	.....	RD1/8PM123J	
	R189	.....	.....	RD1/8PM563J	
	R192	.....	.....	RD1/8PM393J	
	R227, R230	.....	.....	RD1/8PM331J	
	R278, R280, R294	RD1/8PM331J	RD1/8PM331J	.....	
	R281, R283, R286	RD1/8PM561J	RD1/8PM561J	.....	
	R282	RD1/8PM102J	RD1/8PM102J	RD1/8PM221J	
	R285	RD1/8PM221J	RD1/8PM221J	.....	
	R287, R301	RD1/8PM222J	RD1/8PM222J	.....	
	R288, R292, R293	RD1/8PM471J	RD1/8PM471J	.....	
	R291	RD1/8PM681J	RD1/8PM681J	.....	
	R313	RD1/8PM393J	RD1/8PM393J	.....	
	R316	RD1/8PM683J	RD1/8PM683J	.....	
	R317, R384, R393	RD1/8PM103J	RD1/8PM103J	.....	
	R361 - R363	.....	.....	RD1/8PM221J	
	R392	RD1/8PM473J	RD1/8PM473J	.....	
	R632	RS2LMF4R7J	RS2LMF4R7J	RS2LMF6R8J	
	R641	RD1/2PMFL4R7J	.....	RD1/2PMFL4R7J	
	R801	RD1/8PM272J	RD1/8PM472J	RD1/8PM562J	
	R802	RD1/8PM562J	RD1/8PM562J	RD1/8PM392J	
	R830, R833, R959	RD1/8PM182J	.....	RD1/8PM182J	
	R844, R845, R984, R985	RD1/8PM102J	.....	RD1/8PM102J	
	R900 - R902	RD1/8PM222J	.....	.....	
	R904	RD1/8PM102J	RD1/8PM222J	RD1/8PM222J	
	R958	RD1/8PM101J	.....	RD1/8PM101J	
	R967, R968	RD1/8PM103J	.....	RD1/8PM103J	
	DL115	ATN1014	ATN1014	.....	

AV I/O - 3P•Y/C SEP ASSEMBLY(AWZ3528)

The AV I/O - 3P•Y/C SEP assembly(AWZ3528) is the same as the AV I/O - 3P•Y/C SEP assembly(AWZ3529) with the exception of the following parts.

Mark	Symbol & Description	Part No.		Remarks
		AWZ3529	AWZ3528	
	Q575 Q583 Q593 C977 R1557, R1558	2SA933S 2SC1740S RN1203 CEAS100M50 RD1/8PM472J	..... ..... ..... ..... .....	
	R1561 R1565 R1586 R1591 R1592	RD1/8PM682J RD1/8PM470J RD1/8PM473J RD1/8PM103J RD1/8PM153J	 RD1/8PM102J	
	R1609 R1613 R1652	RD1/8PM102J RD1/8PM152J RD1/2PMFL330J	..... ..... .....	

REMOTE CONTROL UNIT (AXD1201 (CU - SD046))

The remote control unit(AXD1201 [CU - SD046]) is the same as the remote control unit(AXD1199 [CU - SD044]) with the exception of the following parts.

Mark	Symbol & Description	Part No.		Remarks
		AXD1199(CU - SD044)	AXD1201(CU - SD046)	
	Name plate Rubber sheet	AZA1324 AZA1323	AZA1325 AZA1327	

Note: The remote control unit AXD1201(CU - SD046) which is deleted a D - SOUND EXPANSION button(S45) on the remote control unit AXD1199(CU - SD044).

As to the remote control unit AXD1199 (CU - SD044), refer to the service manual ARP2273, SD - P4053 - K.

5.2 P. C. B's PARTS LIST

Mark	No.	Description	Part No.
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AUDIO ASSEMBLY(AWZ3537)

SEMICONDUCTORS

IC504	AUDIO IC	TA7630P
IC505	AUDIO IC	LA4280
Q507, 508	TRANSISTOR	2SC1740S
Q509, 510	TRANSISTOR	2SC3327
Q511, 512	TRANSISTOR	2SC1740S

Q513	TRANSISTOR	2SA933S
Q514	TRANSISTOR	2SC1740S
D501	DIODE	11E2
D502, 503	DIODE	1SS252
D504, 505	ZENER DIODE	RD6. 8ESB2

D506-514	DIODE	1SS252
D515	ZENER DIODE	RD5. 1ESB2
D516-518	DIODE	1SS252
D520	DIODE	1SS252

COILS

L501, 502	COIL(1 μ H)	ATH-133
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CAPACITORS

C569, 597	ELECTROLYTIC CAPACIT	CEAS221M50
C598, 599	CERAMIC CAPACITOR	CKMYB151K50
C600	ELECTR. CAPACITOR	CEAS100M25
C612, 613	AUDIO FILM CAPACITOR	CFTXA154J50
C619	ELECTR. CAPACITOR	CEAS470M10

C621, 622	CERAMIC CAPACITOR	CKCYB562K50
C623, 624	AUDIO FILM CAPACITOR	CFTXA124J50
C625	ELECTR. CAPACITOR	CEAS470M10
C626, 627	ELECTR. CAPACITOR	CEAS100M50
C630	ELECTR. CAPACITOR	CEAS470M10

C631	ELECTR. CAPACITOR	CEAS100M50
C632	CERAMIC CAPACITOR	CKDYF473Z50
C635	ELECTR. CAPACITOR	CEAS222M16
C640, 641	CERAMIC CAPACITOR	CKMYB561K50
C642	ELECTR. CAPACITOR	CEAS470M10

C647, 648	ELECTR. CAPACITOR	CEAS2R2M50
C650	ELECTR. CAPACITOR	CEAS100M50
C651	ELECTR. CAPACITOR	CEAS330M25
C652	ELECTR. CAPACITOR	CEAS470M50
C653	ELECTR. CAPACITOR	CEAS2R2M50

C654	ELECTROLYTIC CAPACIT	CEAS102M6
C655	ELECTR. CAPACITOR	CEAS2R2M50
C656	ELECTR. CAPACITOR	CEAS222M35
C657	ELECTR. CAPACITOR	CEAS330M25
C658	AUDIO FILM CAPACITOR	CFTXA124J50

C660	ELECTR. CAPACITOR	CEAS222M35
C661, 662	ELECTR. CAPACITOR	CEAS010M50
C663, 664	CERAMIC CAPACITOR	CKDYF473Z50
C665	ELECTR. CAPACITOR	CEAS471M50
C666	AUDIO FILM CAPACITOR	CFTXA124J50
C667	CERAMIC CAPACITOR	CKDYF473Z50

Mark	No.	Description	Part No.
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RESISTORS

R1132	CARBON FILM RESISTOR	RD1/4PMFL150J
R1180	CARBONFILM RESISTOR	RD1/2PM152J
R1181, 1182	CARBON FILM RESISTOR	RD1/4PMFL000J
R1184	CARBONFILM RESISTOR	RD1/2PM152J
R1186, 1187	CARBON FILM RESISTOR	RD1/4PMFL000J
	OTHER RESISTORS	RD1/8PM000J

W FRONT CONTROL ASSEMBLY (AWZ3542)

SEMICONDUCTORS

IC551	MCU	PD5136
D552	ZENER DIODE	RD3. 0ESB
D553, 554	DIODE	1SS252

SWITCHES

S551-566	SWITCH	ASG1034
	POWER, PRESET MENU, DIGITAL PINP(INPUT.ON/OFF), PRESET MENU (ON/OFF, SELECT ADJ(+, -, SET), FACTORY ADJ, DPO, STD/AV MEM, VOLUME(+, -), CHANNEL(+, -), INPUT SELECTOR	

CAPACITORS

C671	ELECTR. CAPACITOR	CEAS2R2M50
C672	CERAMIC CAPACITOR	CGMYX103M16
C673	AUDIO FILM CAPACITOR	CFTXA104J50
C674, 675	CERAMIC CAPACITOR	CCDCH221J50
C676	CERAMIC CAPACITOR	CKDYB472K50
C679	ELECTR. CAPACITOR	CEAS101M10

RESISTORS

R1226	CARBON FILM RESISTOR	RD1/2PMF820J
	OTHER RESISTORS	RD1/8PM000J

OTHERS

X551	CERAMIC OSCILLATOR	ASS1043
	PIN JACK(1P)	AKB1055
	PIN JACK(1P)	AKB1056
	PIN JACK(1P)	AKB1057
CN	SOCKET	AKP1081

IR RECEIVER ASSEMBLY(AWZ3544)

SEMICONDUCTORS

Q551	TRANSISTOR	2SC1740S
D551	LED	AEL-463

CAPACITORS

C677	ELECTROLYTIC CAPACIT	CEJA330M16
C678	CERAMIC CAPACITOR	CCMSL121J50
C680	ELECTROLYTIC CAPACIT	CEJA100M25

RESISTORS

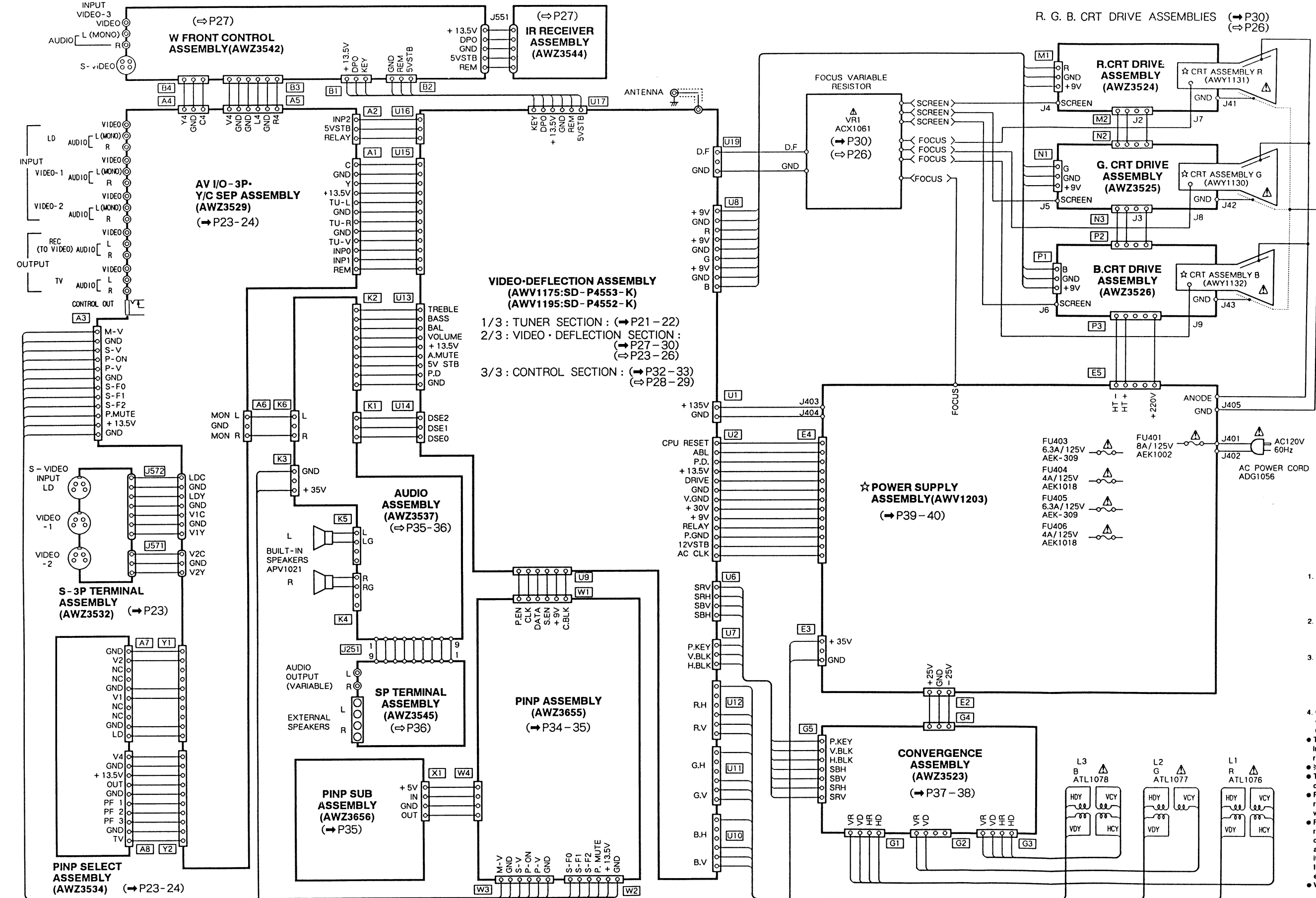
VR551	VR	ACP1045
	OTHER RESISTORS	RD1/8PM000J

OTHERS

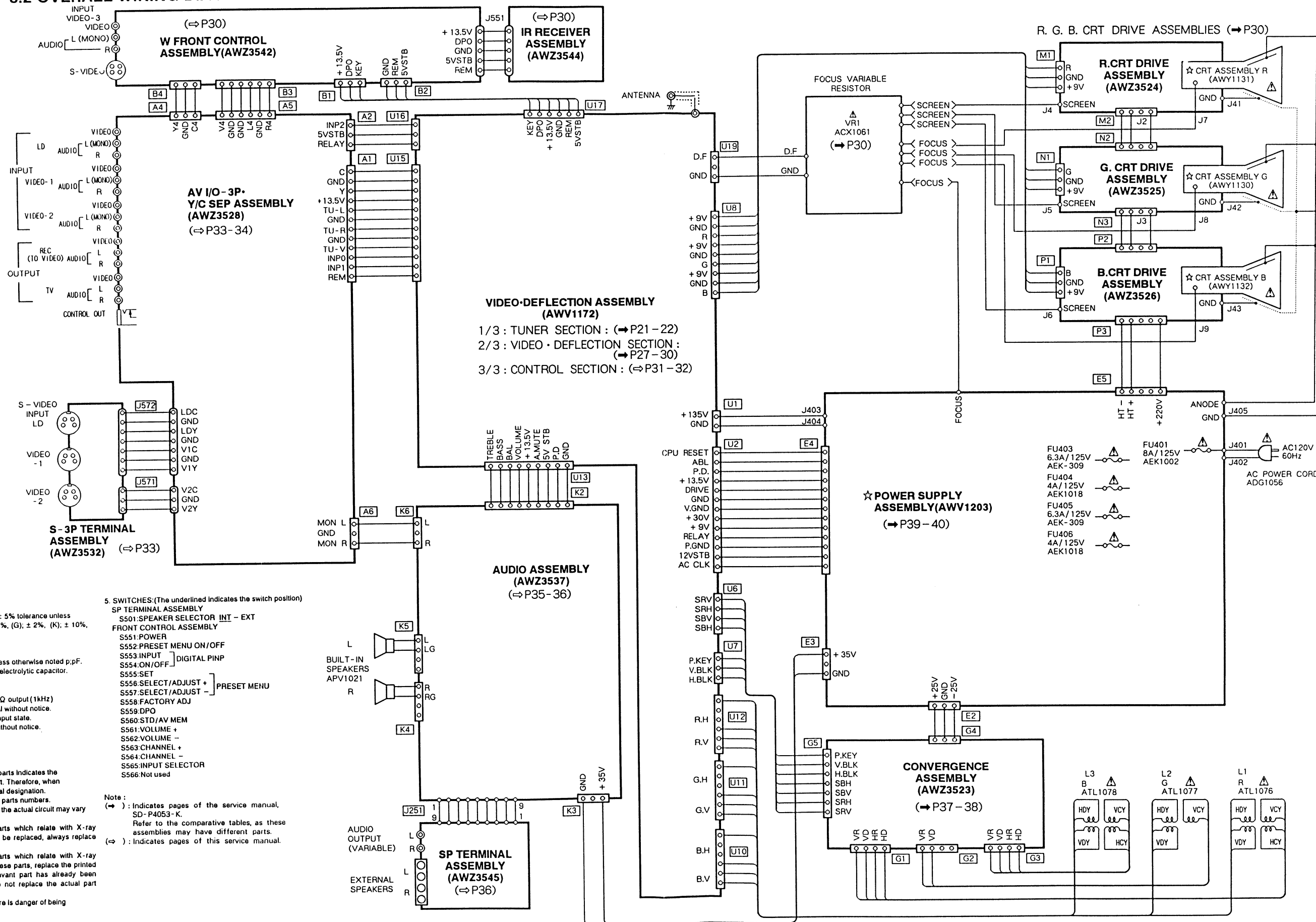
PC551	CDS	USC-08SC
	DPO HOLDER	AMR2294
	REMOTE RECEIVER UNIT	AXX1010

6. SCHEMATIC AND P.C. BOARDS DIAGRAM

6.1 OVERALL WIRING DIAGRAM • FOR SD-P4553-K AND SD-P4552-K TYPES



6.2 OVERALL WIRING DIAGRAM • FOR SD-P455-K TYPE



A

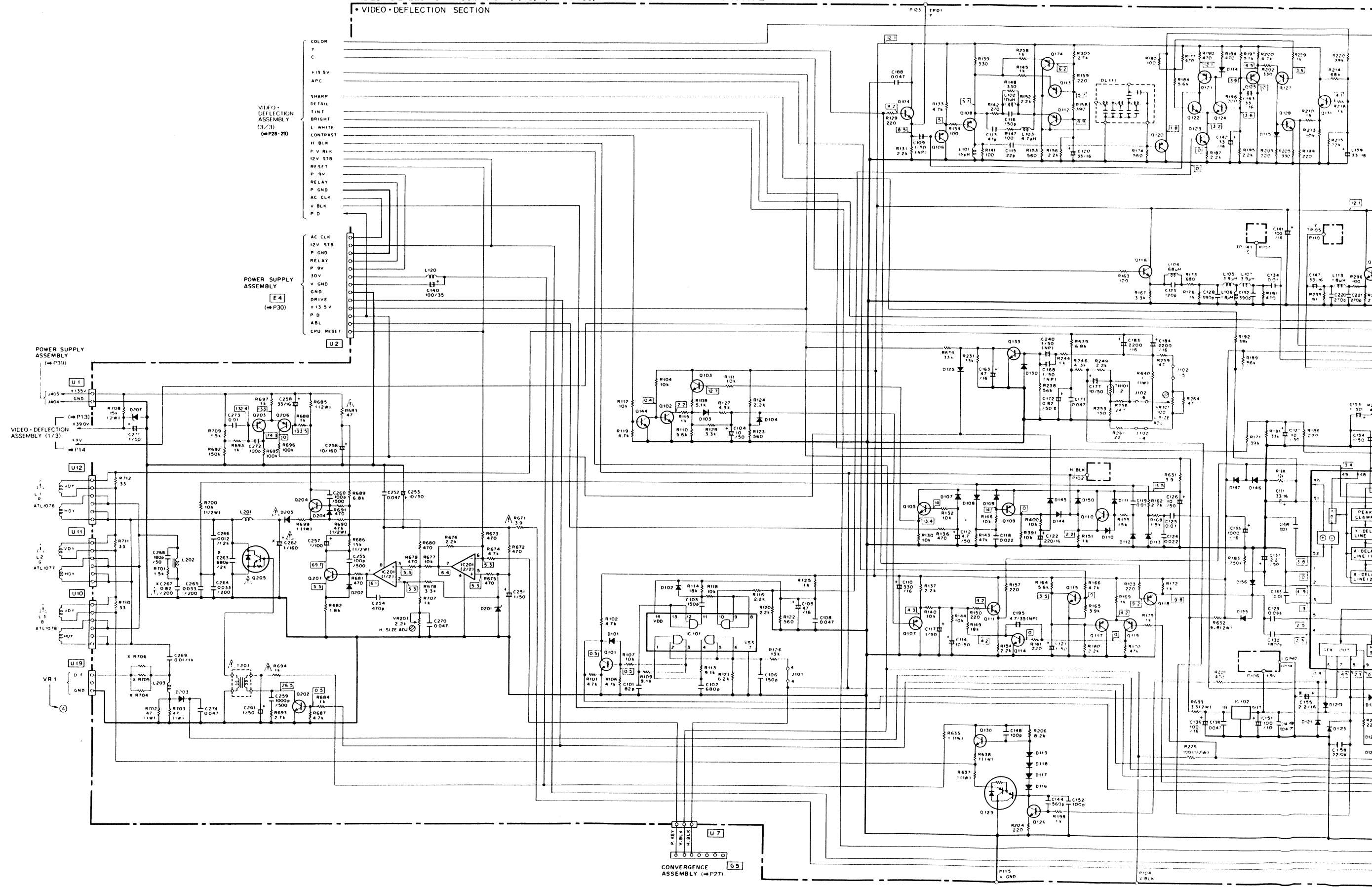
B

C

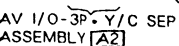
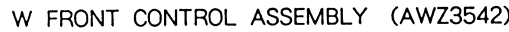
D

6.3 VIDEO-DEFLECTION ASSEMBLY (2/3: VIDEO-DEFLECTION SECTION),
R, G AND B CRT DRIVE ASSEMBLIES

VIDEO-DEFLECTION ASSEMBLY (2/3) (AWV1195) • FOR SD-P4552-K TYPE
• VIDEO-DEFLECTION SECTION

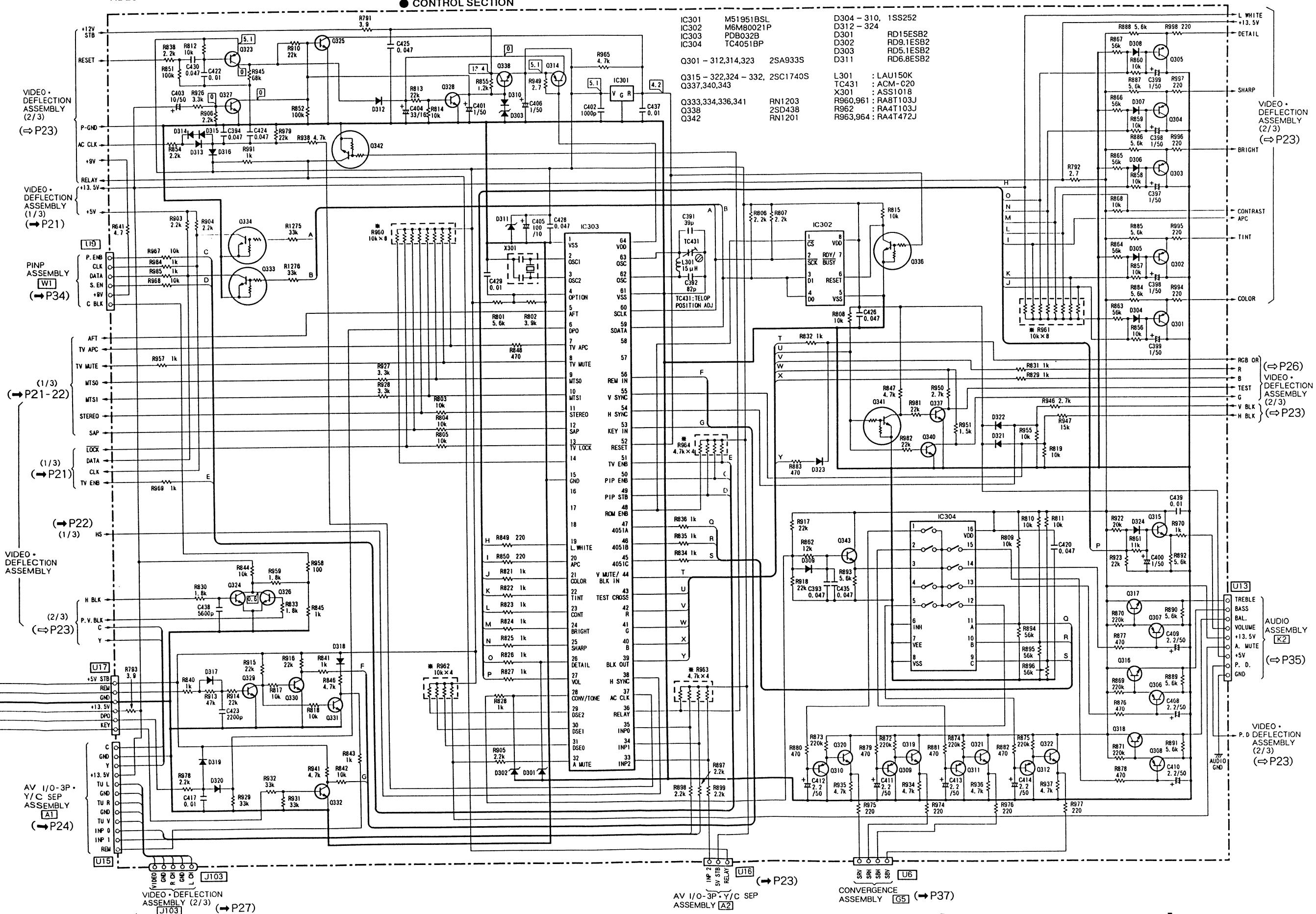


D



VIDEO DEFLECTION ASSEMBLY (3/3) (AWV1195)

● FOR SD-P4552-K TYPE
● CONTROL SECTION



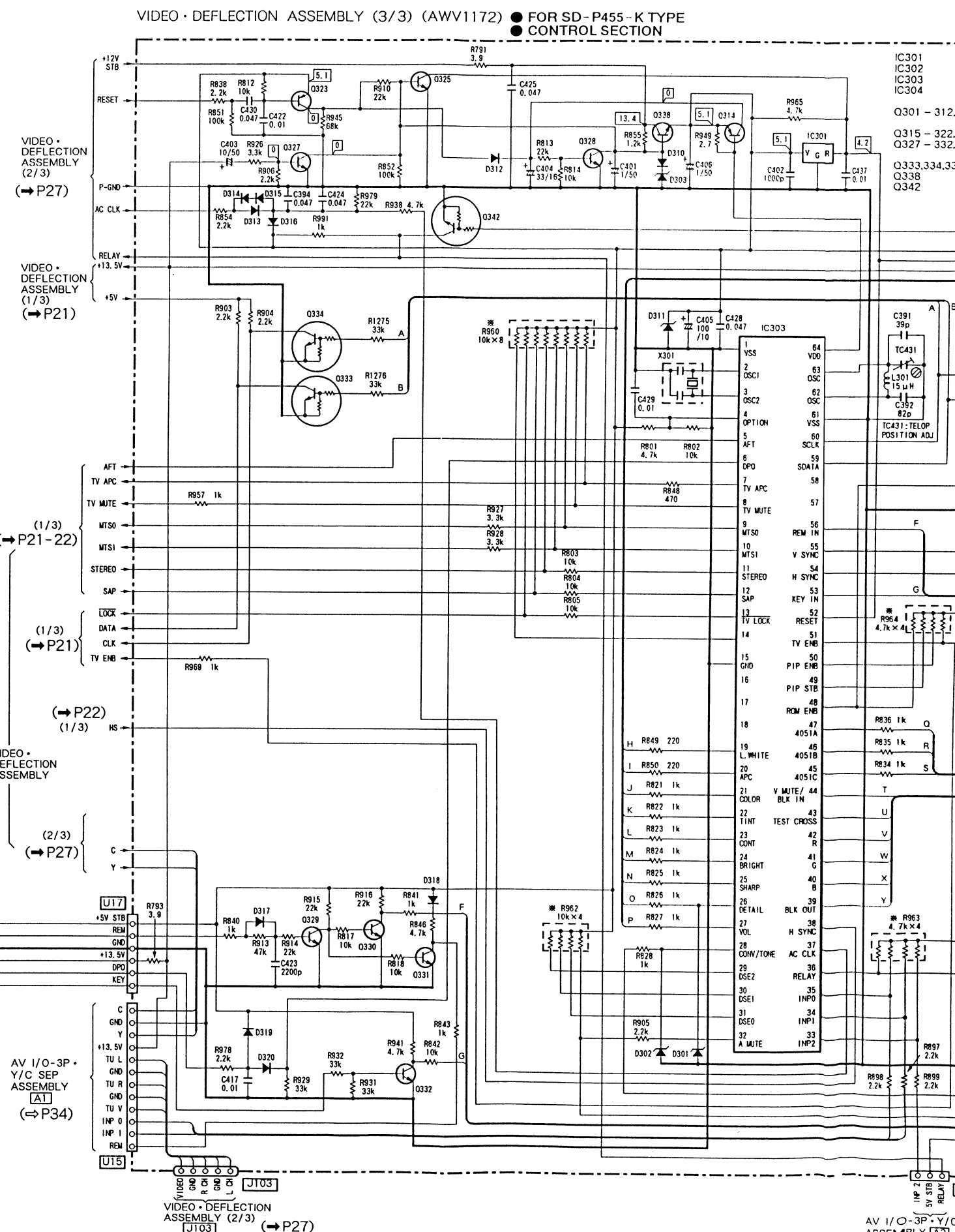
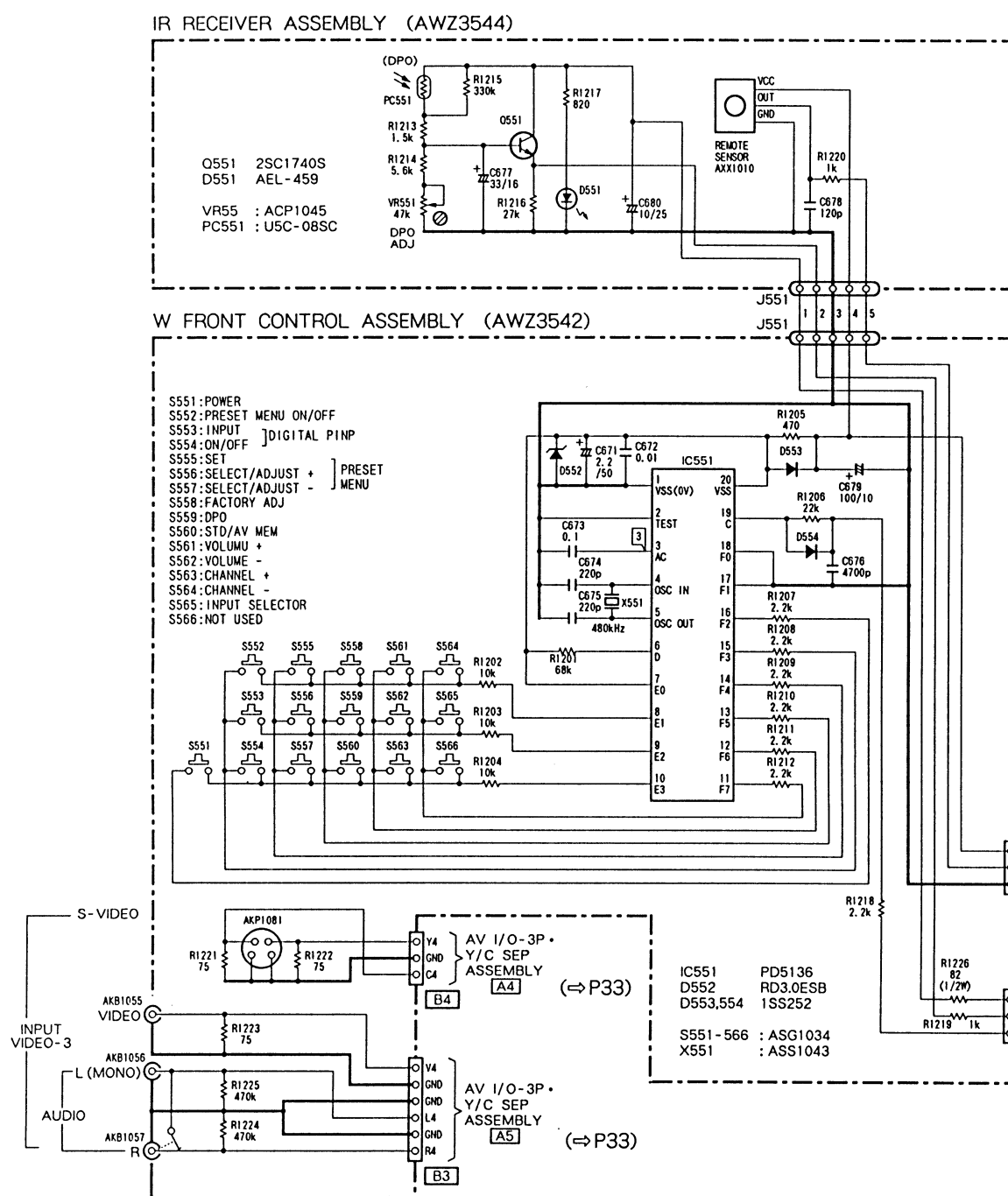
A

B

C

D

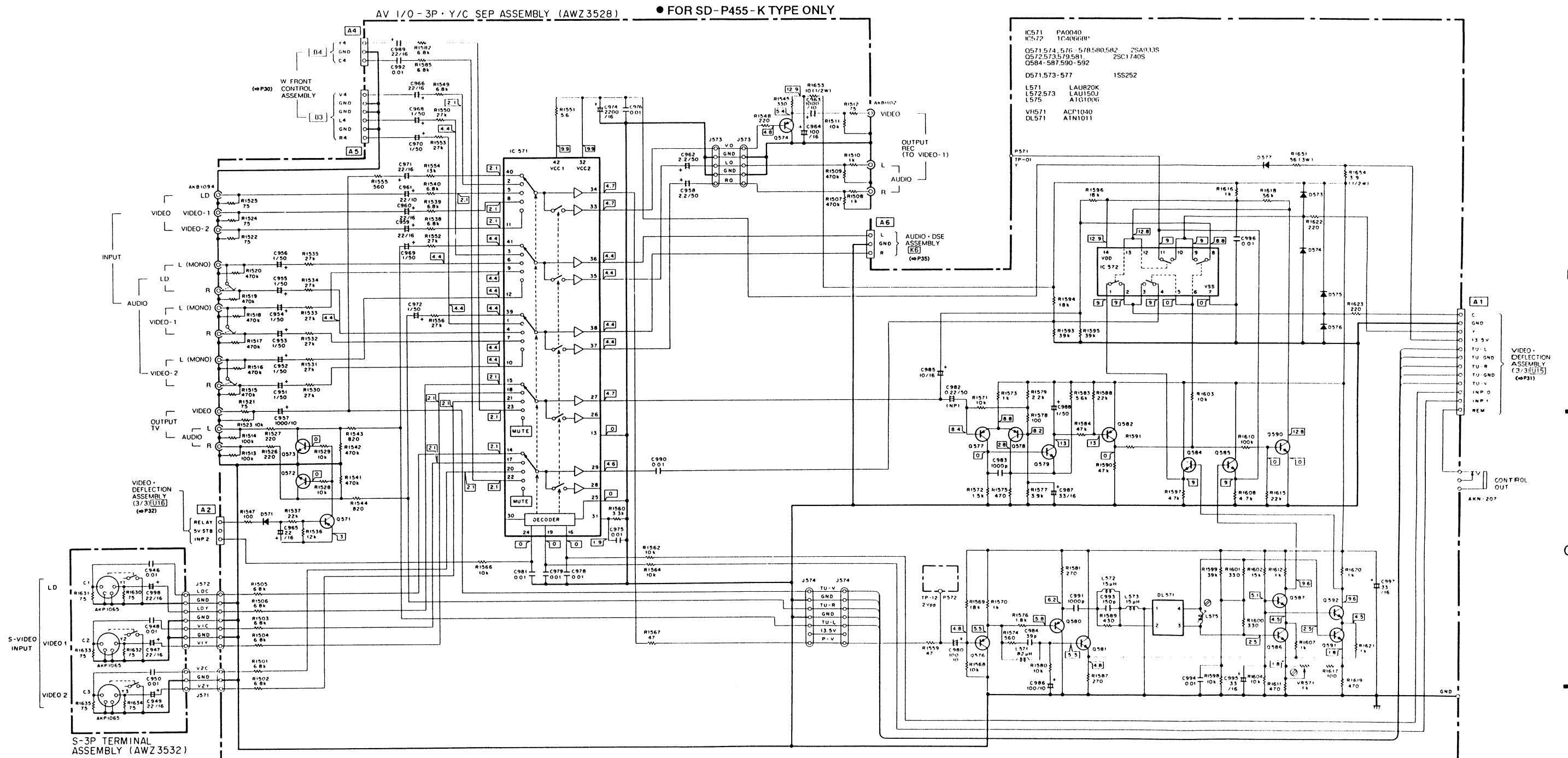
6.5 VIDEO-DEFLECTION ASSEMBLY (3/3: CONTROL SECTION), W FRONT CONTROL AND IR RECEIVER ASSEMBLIES



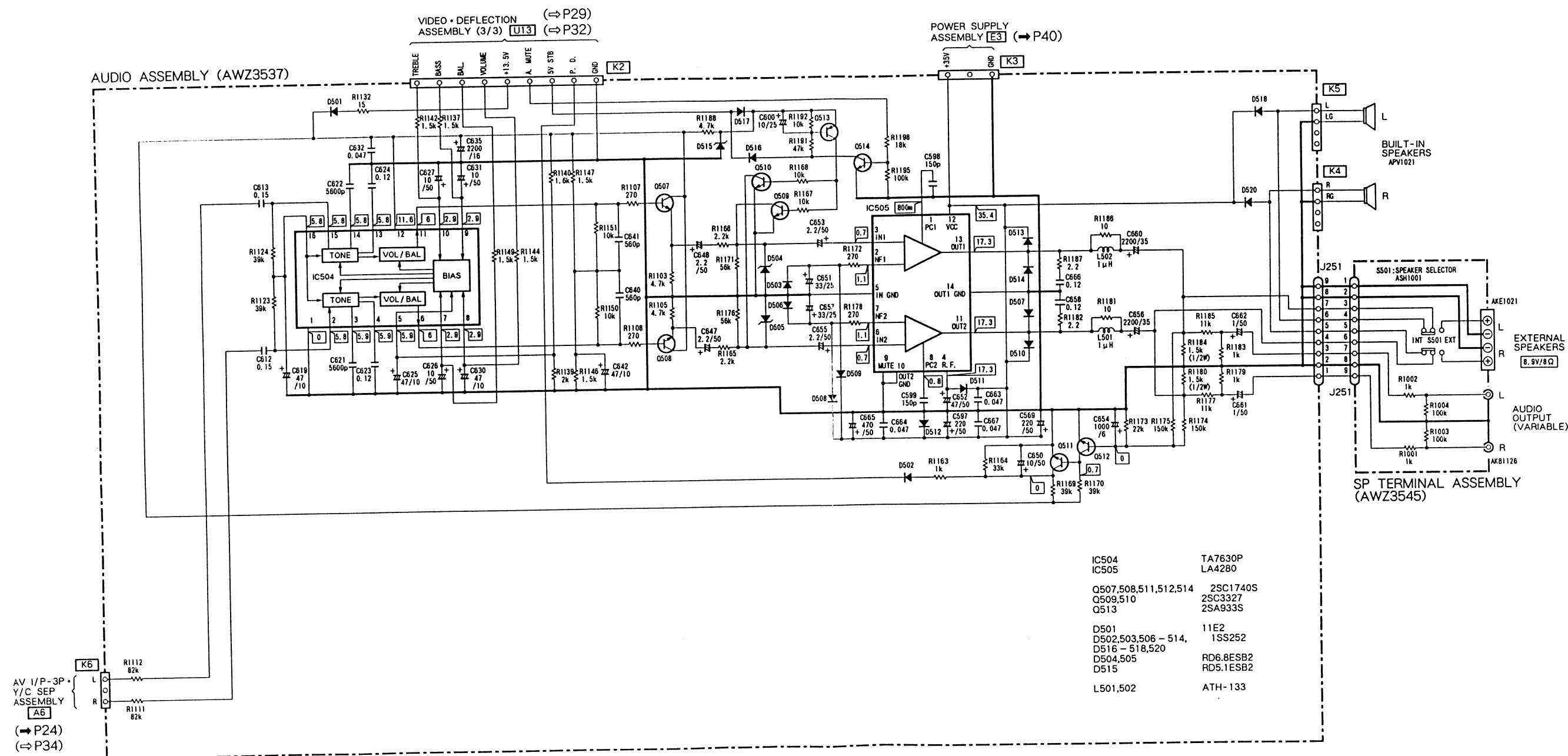
4 | 5 | 6 | 7 | 8 | 9

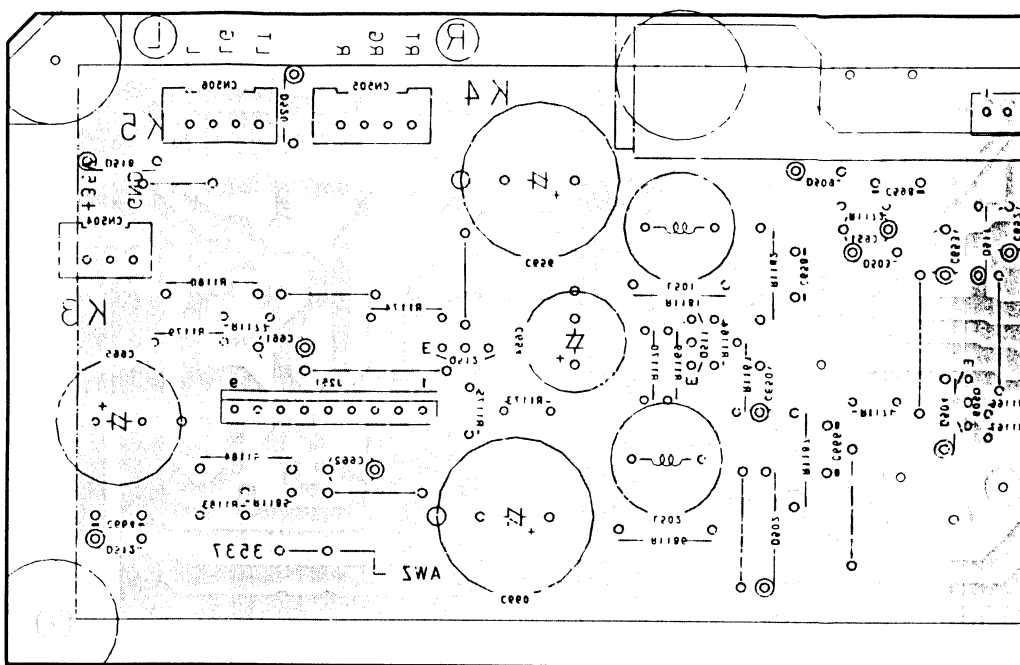


6.6 AV I/O-3P•Y/C SEP AND S-3P TERMINAL ASSEMBLIES



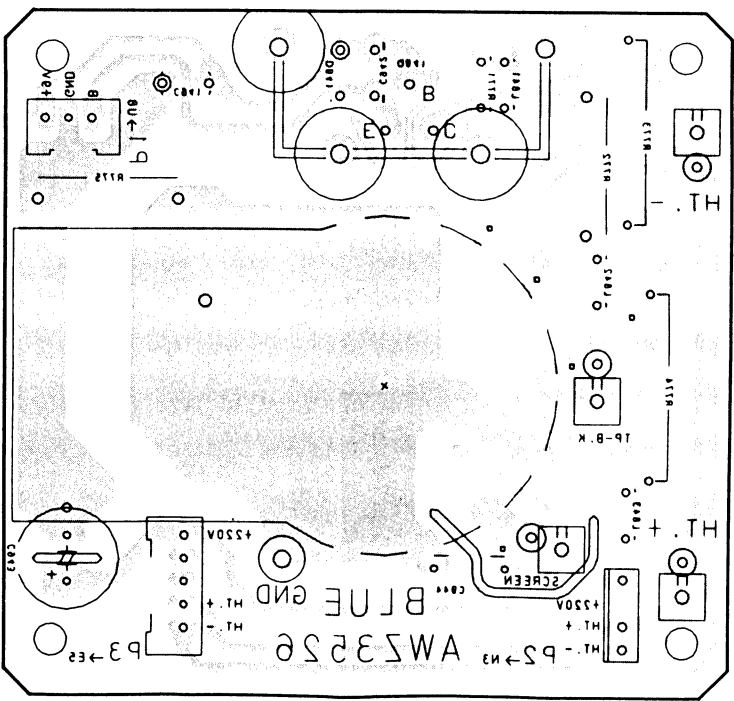
6.7 AUDIO AND SP TERMINAL ASSEMBLIES



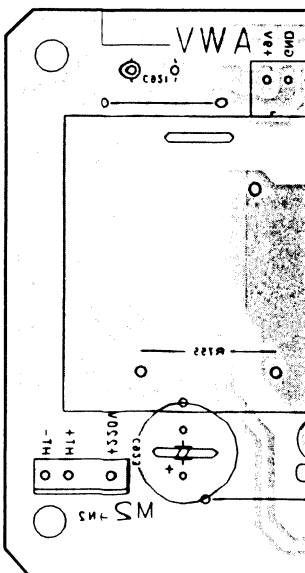


AUDIO ASSEMBLY (AW53537)

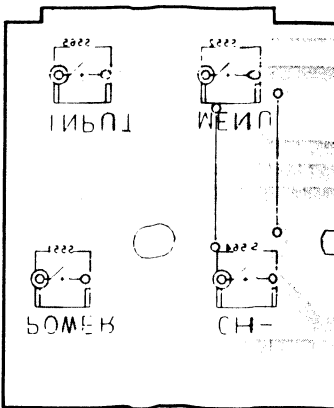
This P.C.B. connection diagram is viewed from the foil side.



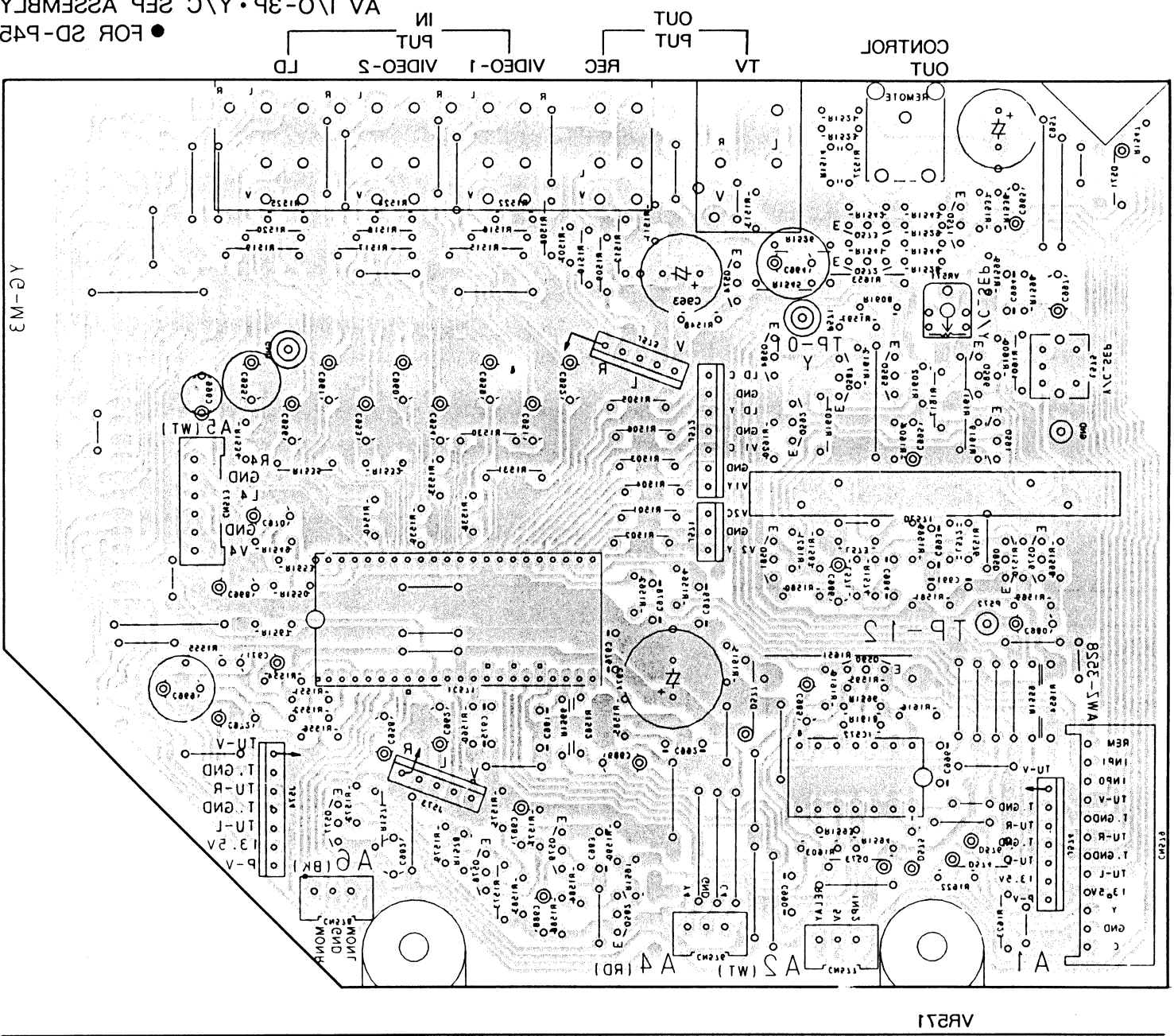
B CRT DRIVE ASSEMBLY (AW53250)



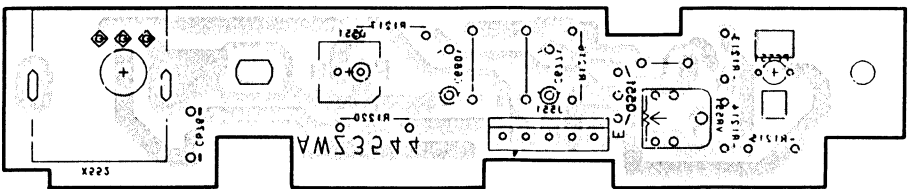
254353 (A) (W)



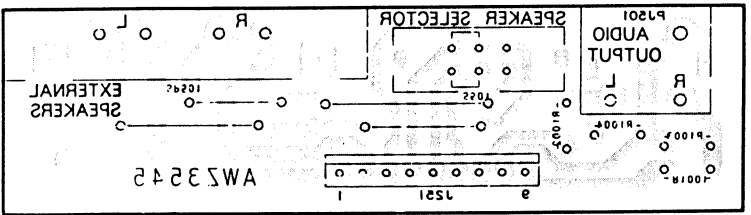
ASSEMBLY (AWΣ324S)



IR RECEIVER ASSEMBLY (AW53544)



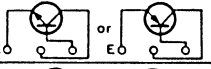
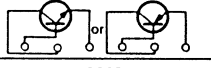
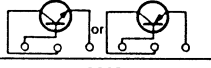
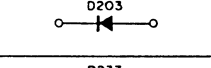
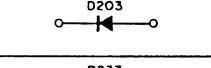
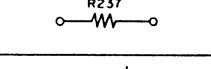
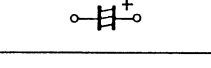
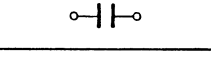
(AW53542)
2P TERMINAL ASSEMBLY



6.8 P.C. BOARDS PATTERN

NOTE

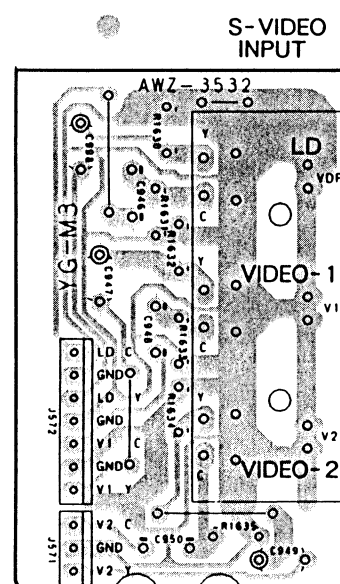
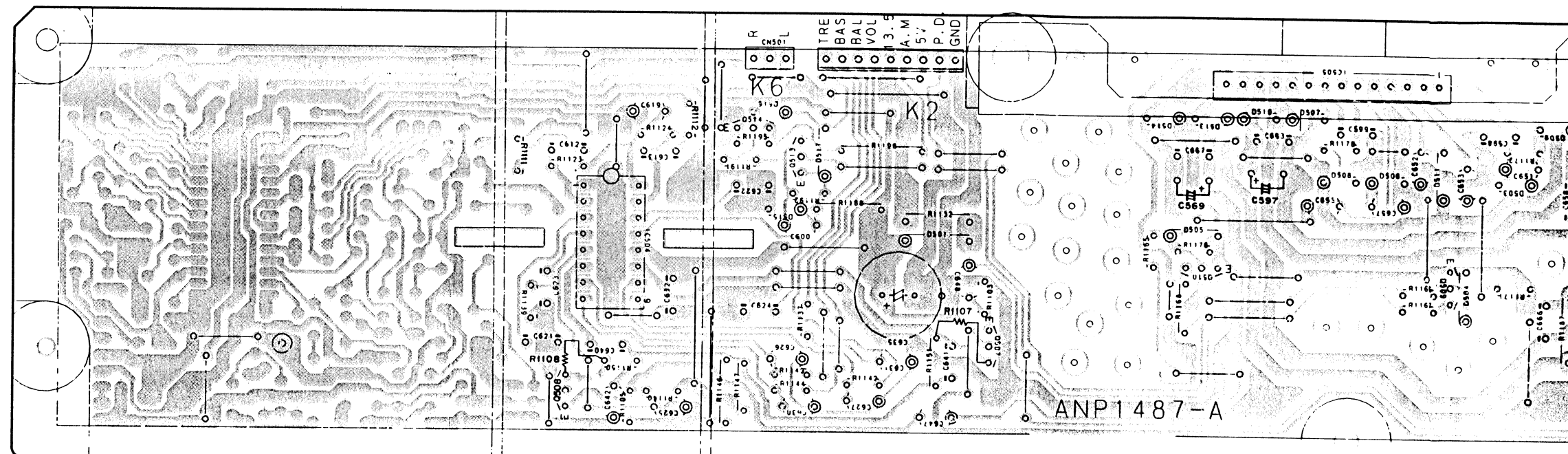
1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
E 0504	 or 	Transistor
Q215	 or 	Radiator type transistor
D203		Diode
R237		Resistor
C513		Capacitor (Polarity)
C518		Capacitor (Non-polarity)

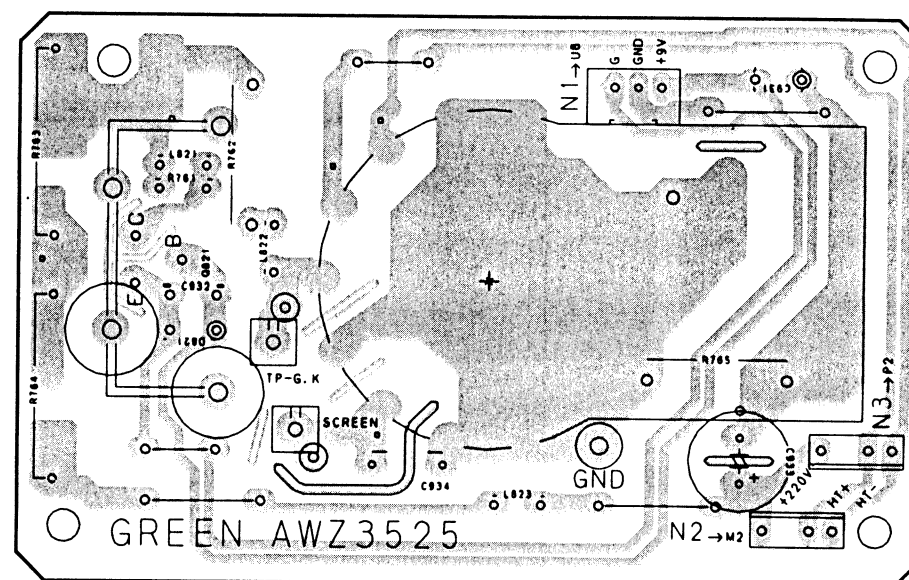
Others

P.C.B. pattern diagram indication	Part Name
IC	IC
S	Switch
RY	Relay
L	Coil
F	Filter
VR	Variable resistor or Semi-fixed resistor

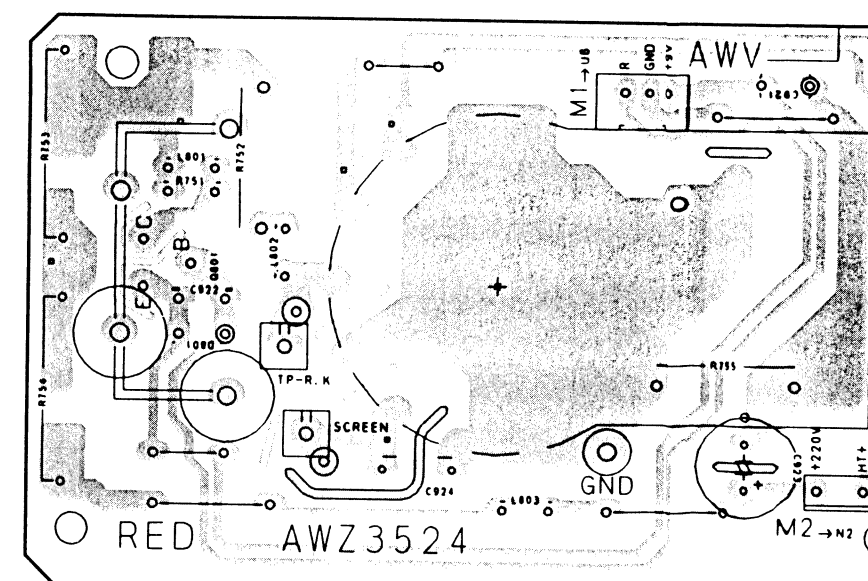
3. The capacitor terminal marked with⊙(double circles) shows negative terminal.
4. The diode terminal marked with⊙(double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.



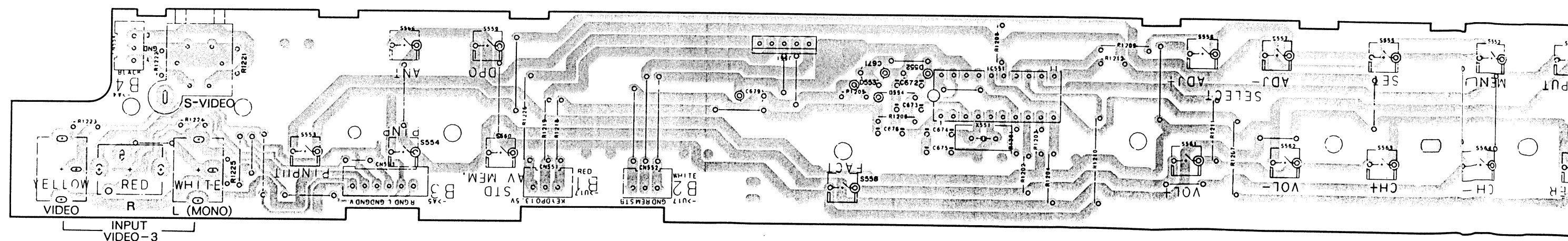
S-3P TERMINAL ASSEMBLY (AWZ3532)



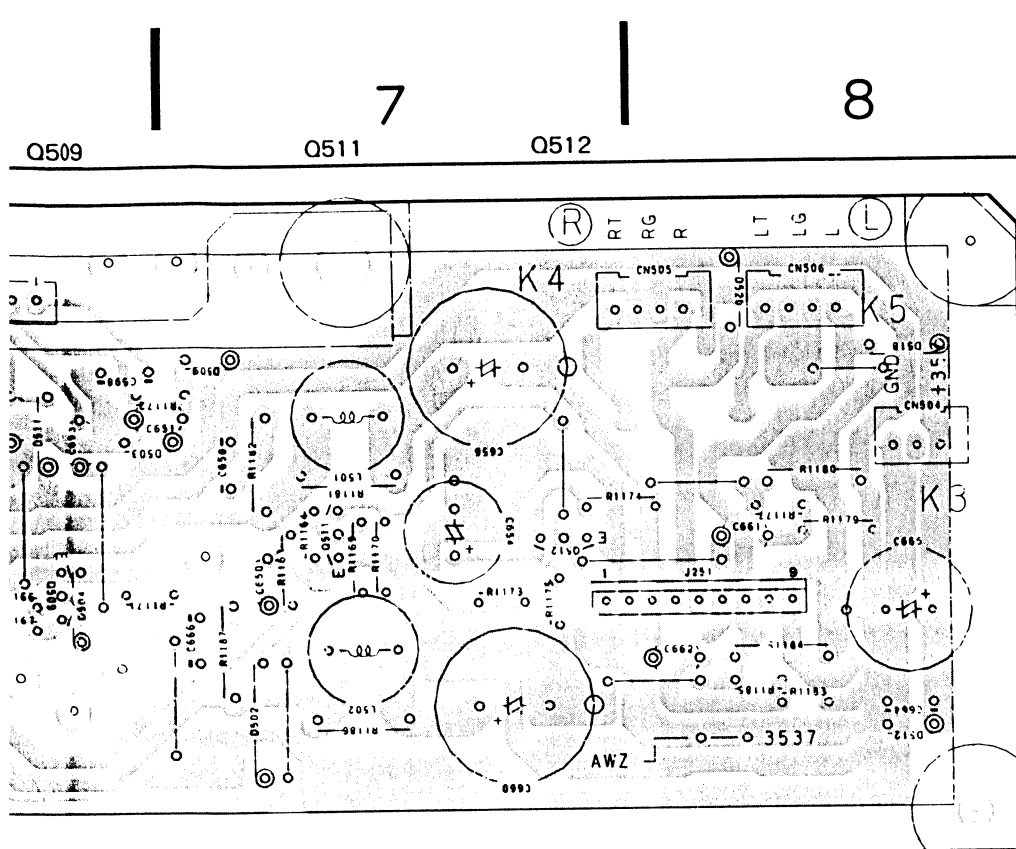
G CRT DRIVE ASSEMBLY (AWZ3525)



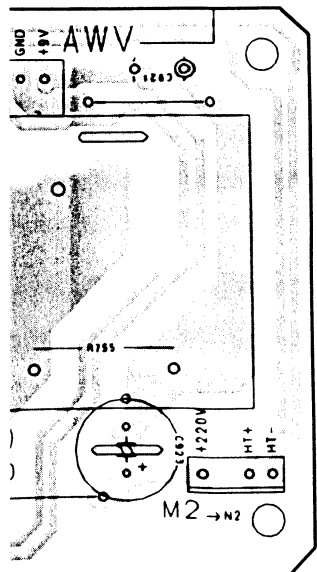
R CRT DRIVE ASSEMBLY (AWZ3524)



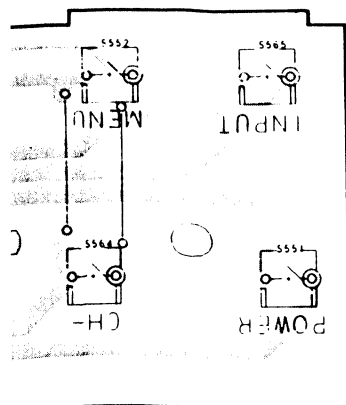
W FRONT CONTROL ASSEMBLY (AWZ3523)



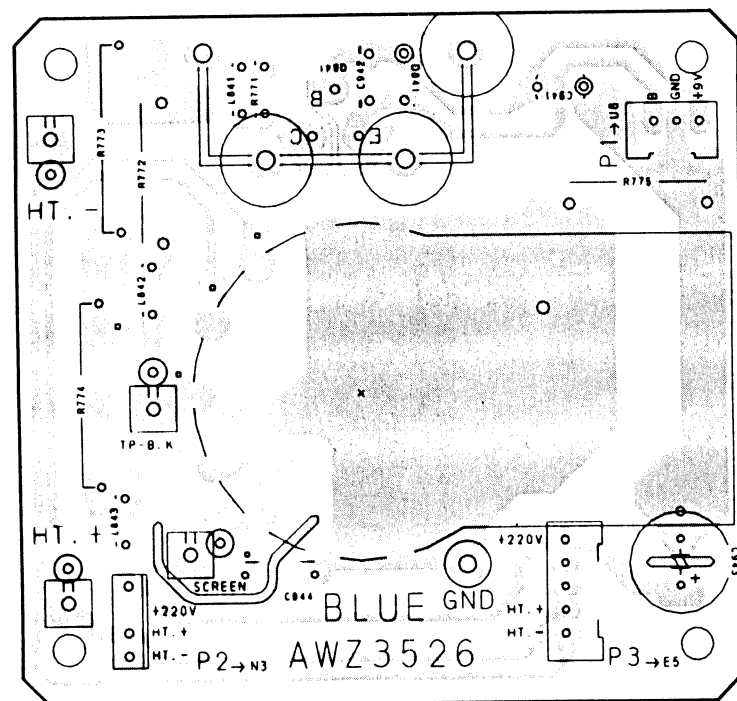
AUDIO ASSEMBLY (AWZ3537)



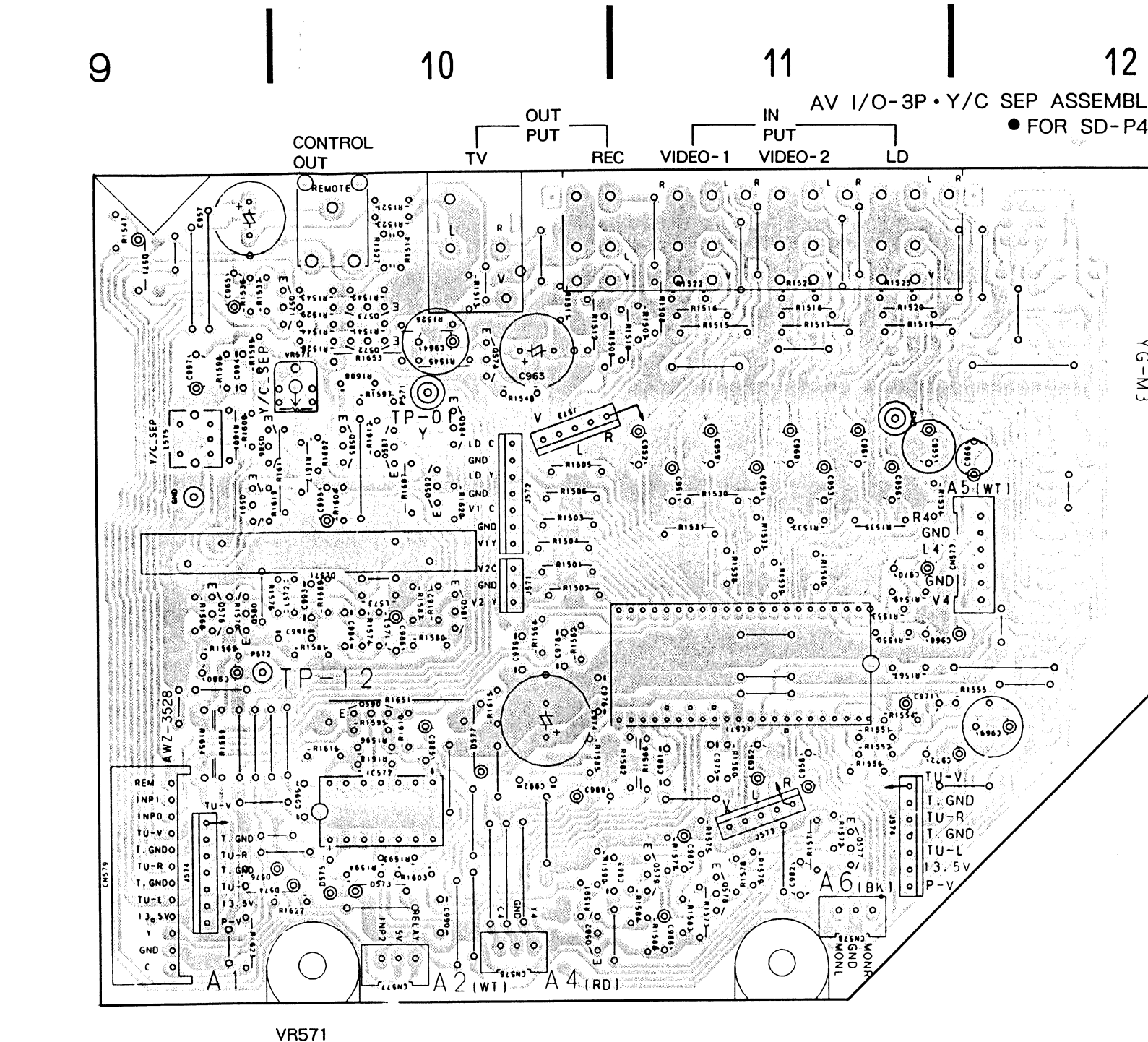
SEMBLY (AWZ3524)



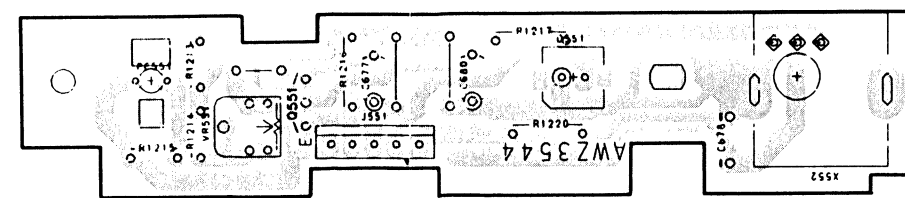
ASSEMBLY (AWZ3542)



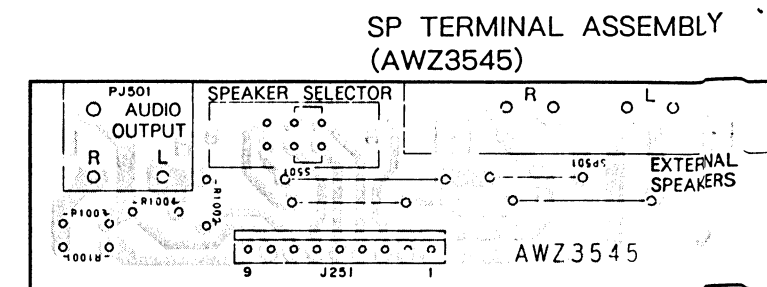
B CRT DRIVE ASSEMBLY (AWZ3526)



VR571
Q571 - Q574
Q584 - Q587
Q591 Q592
Q576 Q580 Q581
Q590
IC572
IC571
Q582 Q579 Q578 Q577



IR RECEIVER ASSEMBLY (AWZ3544)



SP TERMINAL ASSEMBLY (AWZ3545)

A

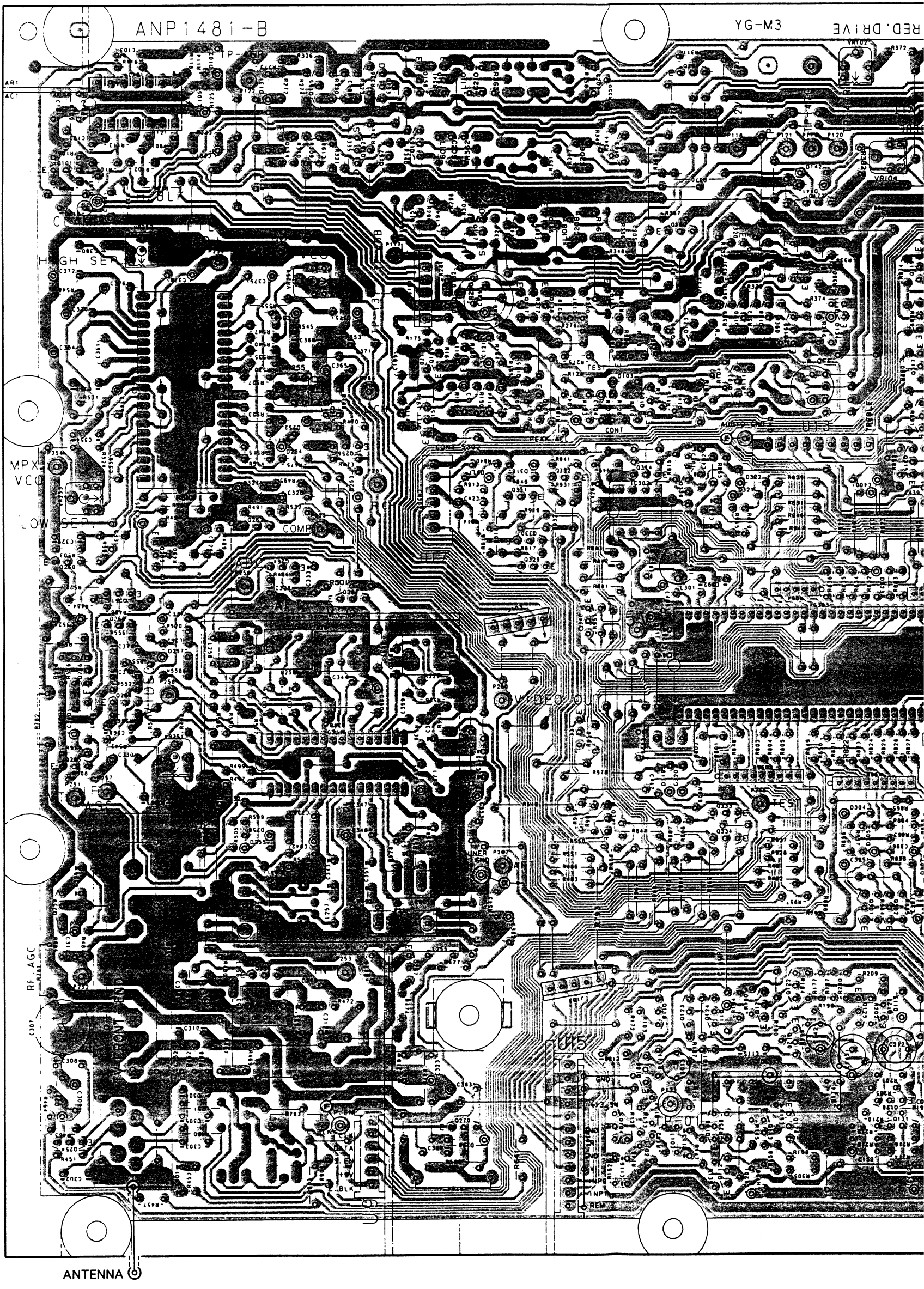
B

C

D

A
B
C
D
E
F

Q101 IC101 Q152-Q155 Q157 Q165 Q158 Q167 Q163 Q164
Q151 Q147 Q148 Q166 Q162 Q156 Q159-Q161 Q172 Q31
Q143 Q149 Q150 Q173 Q168-Q171 Q3
Q119 Q140 Q117 Q115 Q137 Q138 IC301 Q336 Q103 Q317
Q107 IC302 Q314 Q102 Q144 Q315 Q3
Q266 Q268 Q269 Q260-Q264 Q255 Q256 Q114 Q111 Q329-Q332 Q340 IC303 Q301-Q
Q259 Q265 IC251 Q267 Q337 Q341 Q333 Q334 Q120-Q125 Q127
Q254 Q258 Q257 Q106 Q118 Q108 Q112 Q113 Q174 Q128 Q131
Q270
VR252 VR254 VR102 VR104
VR253 VR251 VR255 TC431



Q164

Q156 Q159 — Q161 Q172 Q319 Q309 Q312 Q322 Q324 Q326
Q173 Q168 — Q171 Q316 Q306 Q311 Q321 Q135
Q336 Q103 Q317 Q307 IC304 Q310 Q320 Q136
Q102 Q144 Q315 Q318 Q308 Q343
Q333 Q334 IC303 Q301 — Q305 Q342 Q325 Q327 Q323 Q328
Q120 — Q125 Q127 Q338 Q116
Q108 Q112 Q113 Q174 Q128 Q131 Q145 Q142 IC102

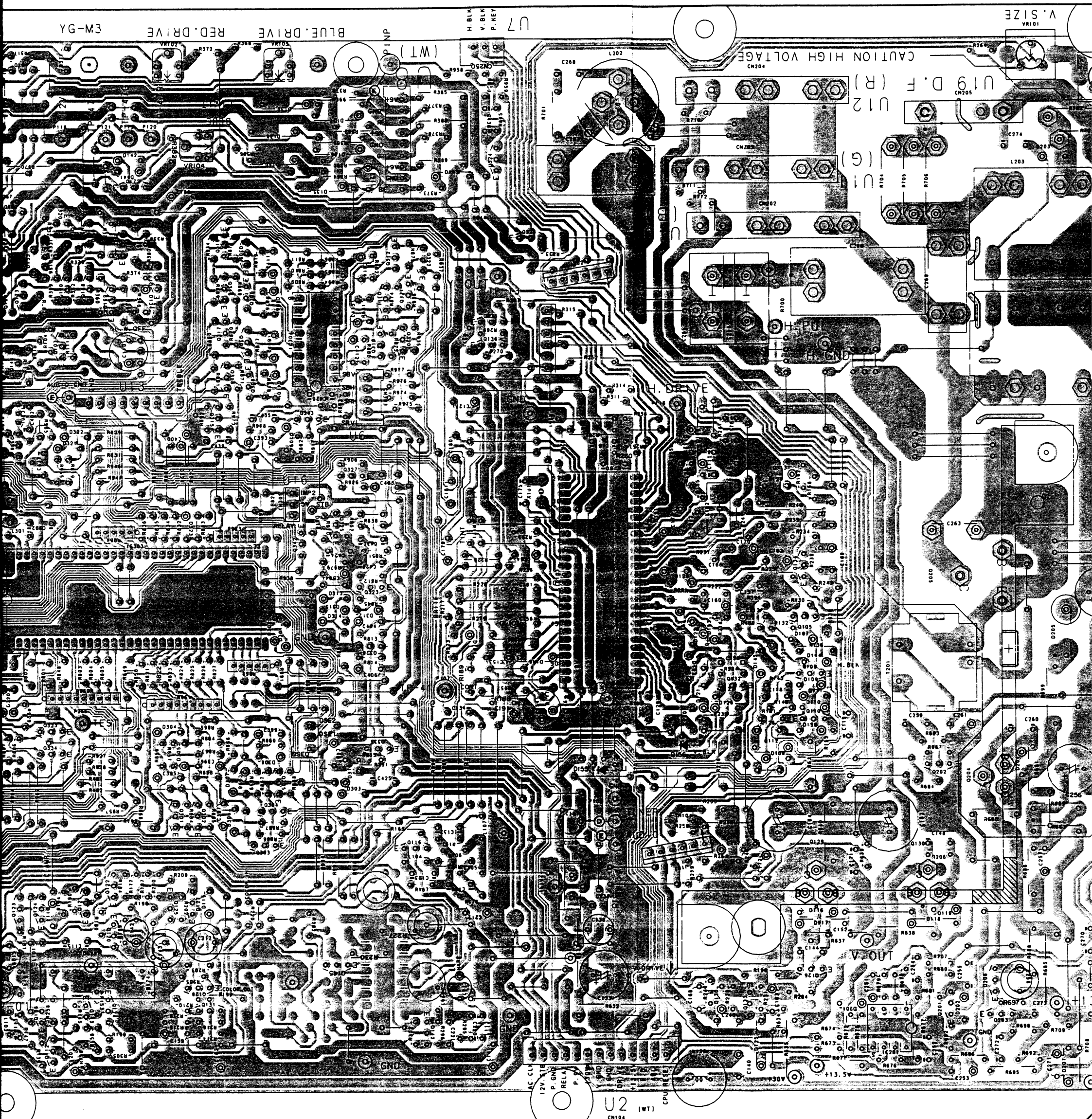
IC103

Q134 Q105 Q205
Q132 Q129 Q109 Q110 Q130 Q202 Q204
Q133 Q126 IC201 Q201 Q206 Q203

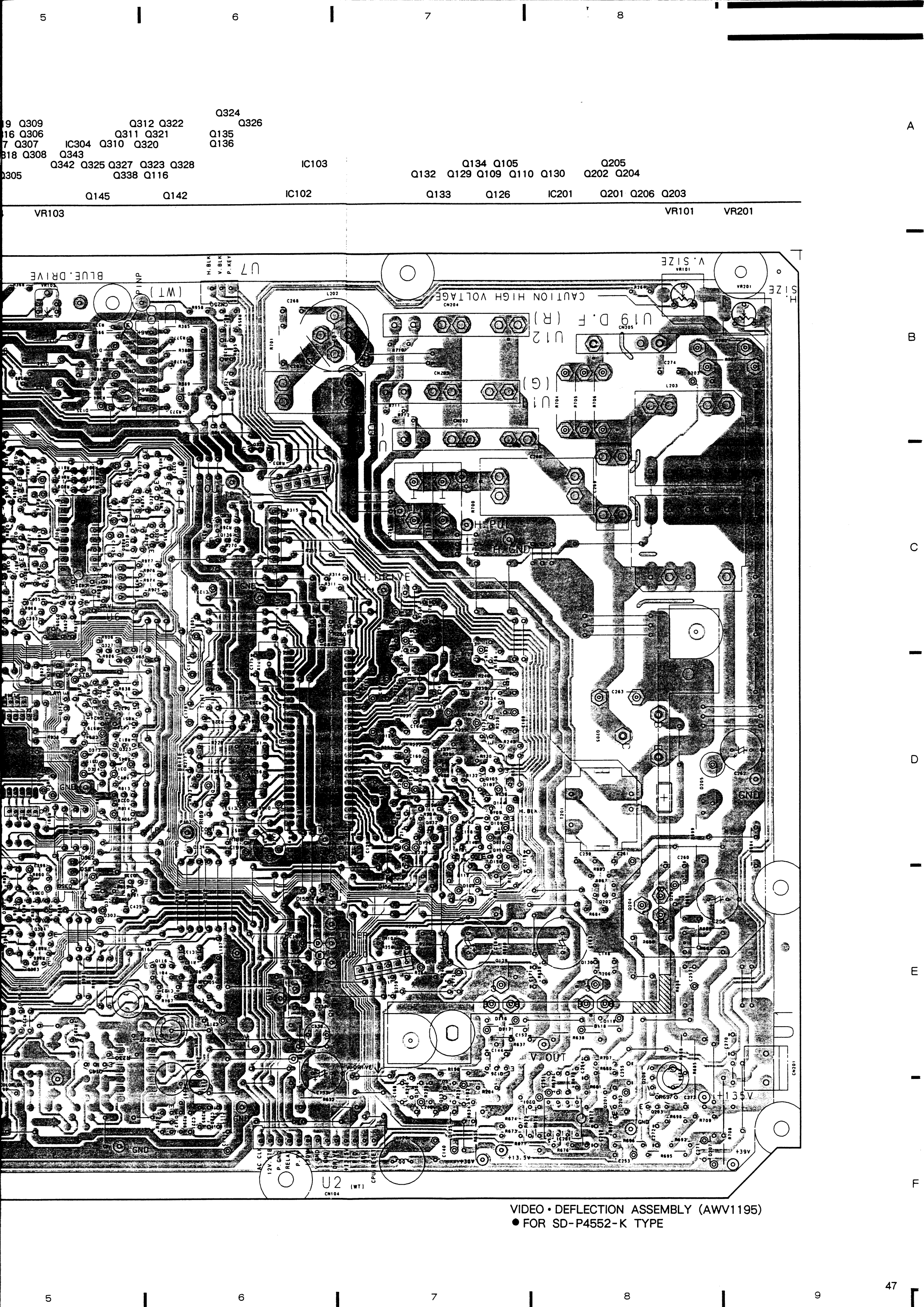
VR102 VR104 VR103

VR101 VR102

C431

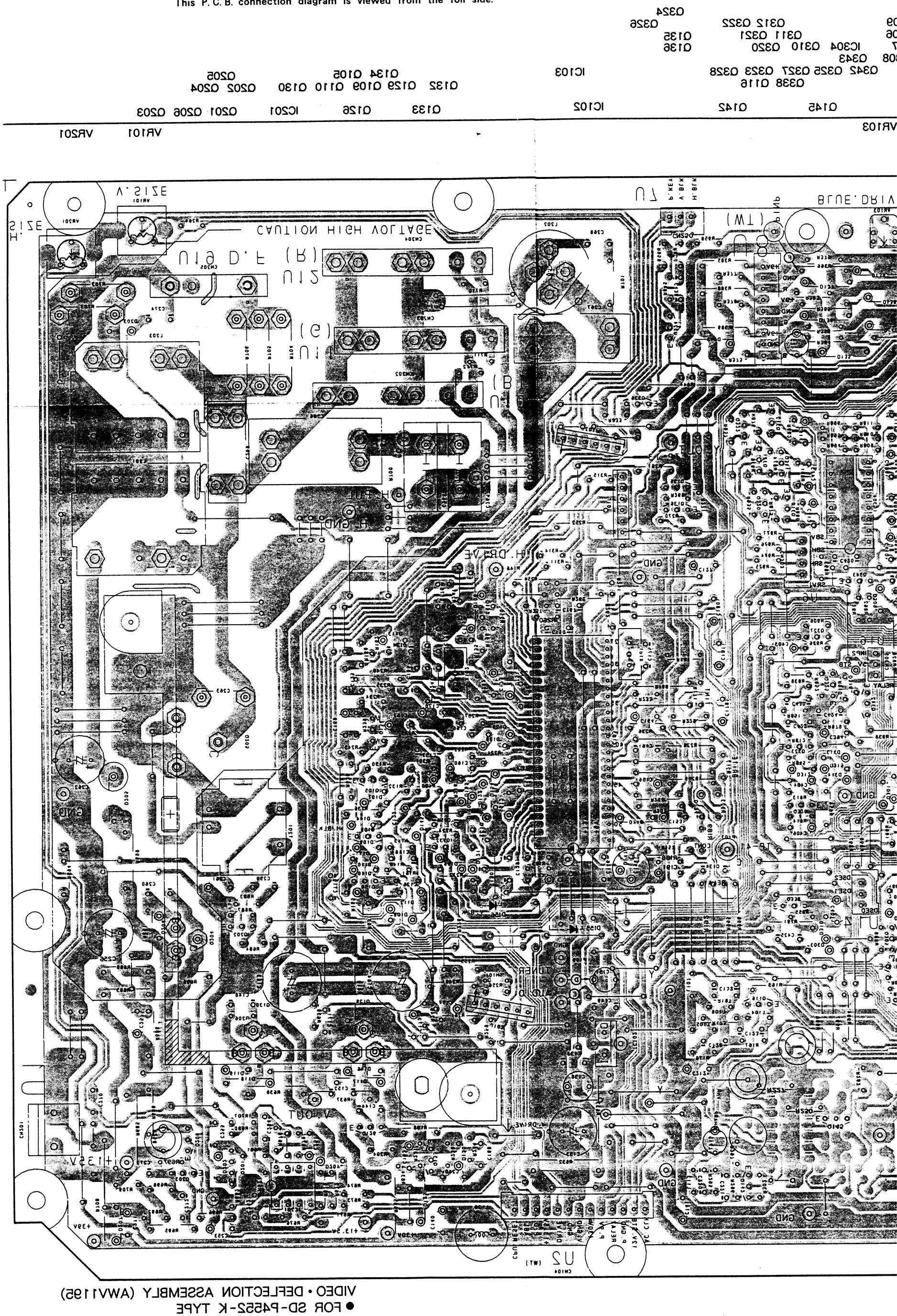


VIDEO • DEFLECTION ASSEMBLY (AWV1)
• FOR SD-P4552-K TYPE

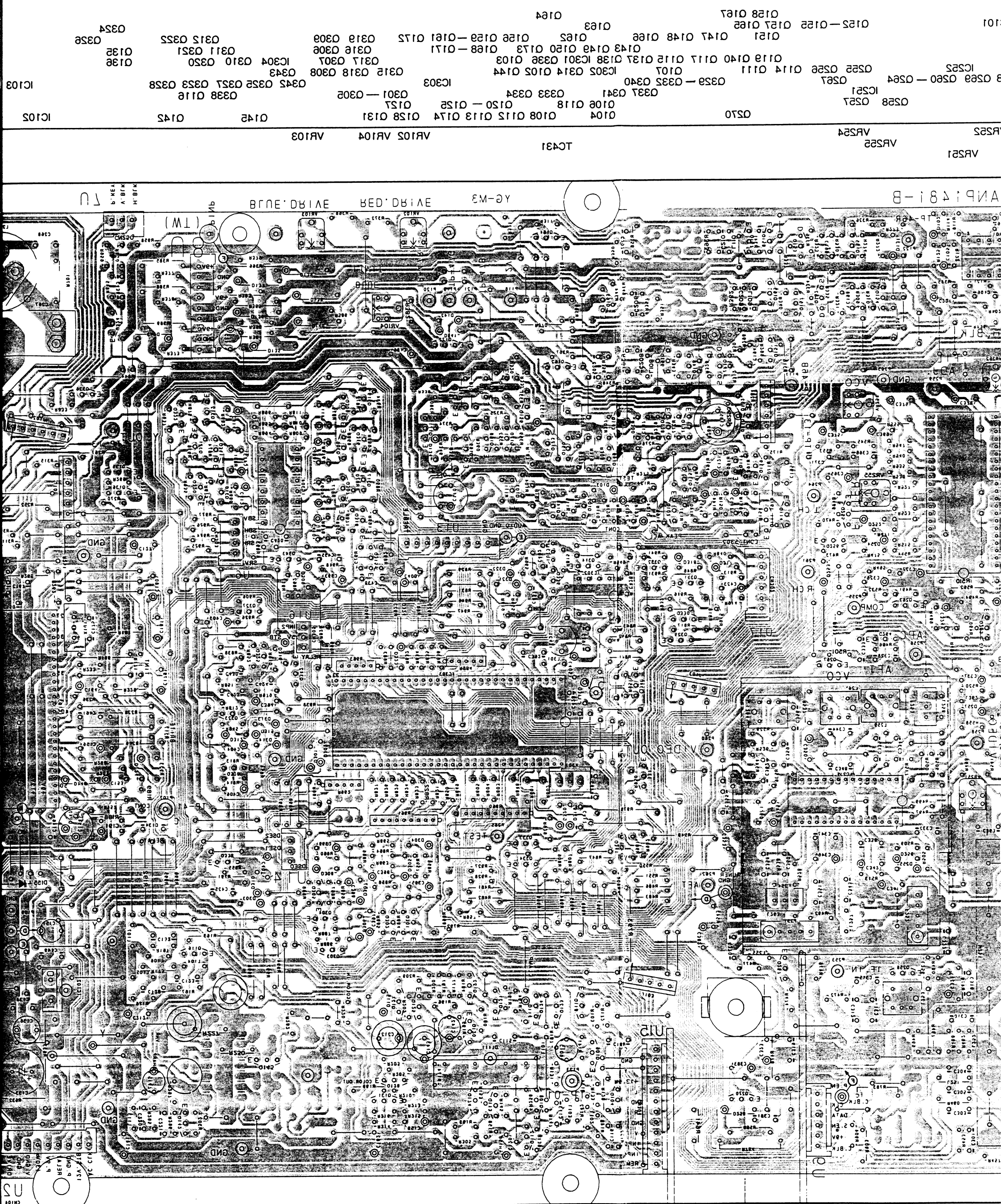


VIDEO • DEFLECTION ASSEMBLY (AWV1195)
• FOR SD-P452-K TYPE

This P.C.B. connection diagram is viewed from the foil side.



• FOR 2D-P4225-K TYPE
VIDEO DEFLECTION ASSEMBLY (AWA1192)



Q164

Q156 Q159 - Q161 Q172 Q319 Q309 Q312 Q322
 Q173 Q168 - Q171 Q316 Q306 Q311 Q321 Q135
 Q336 Q103 Q317 Q307 IC304 Q310 Q320 Q136
 Q102 Q144 Q315 Q318 Q308 Q343
 IC303 Q342 Q325 Q327 Q323 Q328
 Q333 Q334 Q301 - Q305 Q338 Q116
 Q120 - Q125 Q127 Q139
 Q108 Q112 Q113 Q174 Q128 Q131 Q141 IC104 Q142

IC103

Q134 Q105 Q205
 Q132 Q129 Q109 Q110 Q130 Q202 Q204

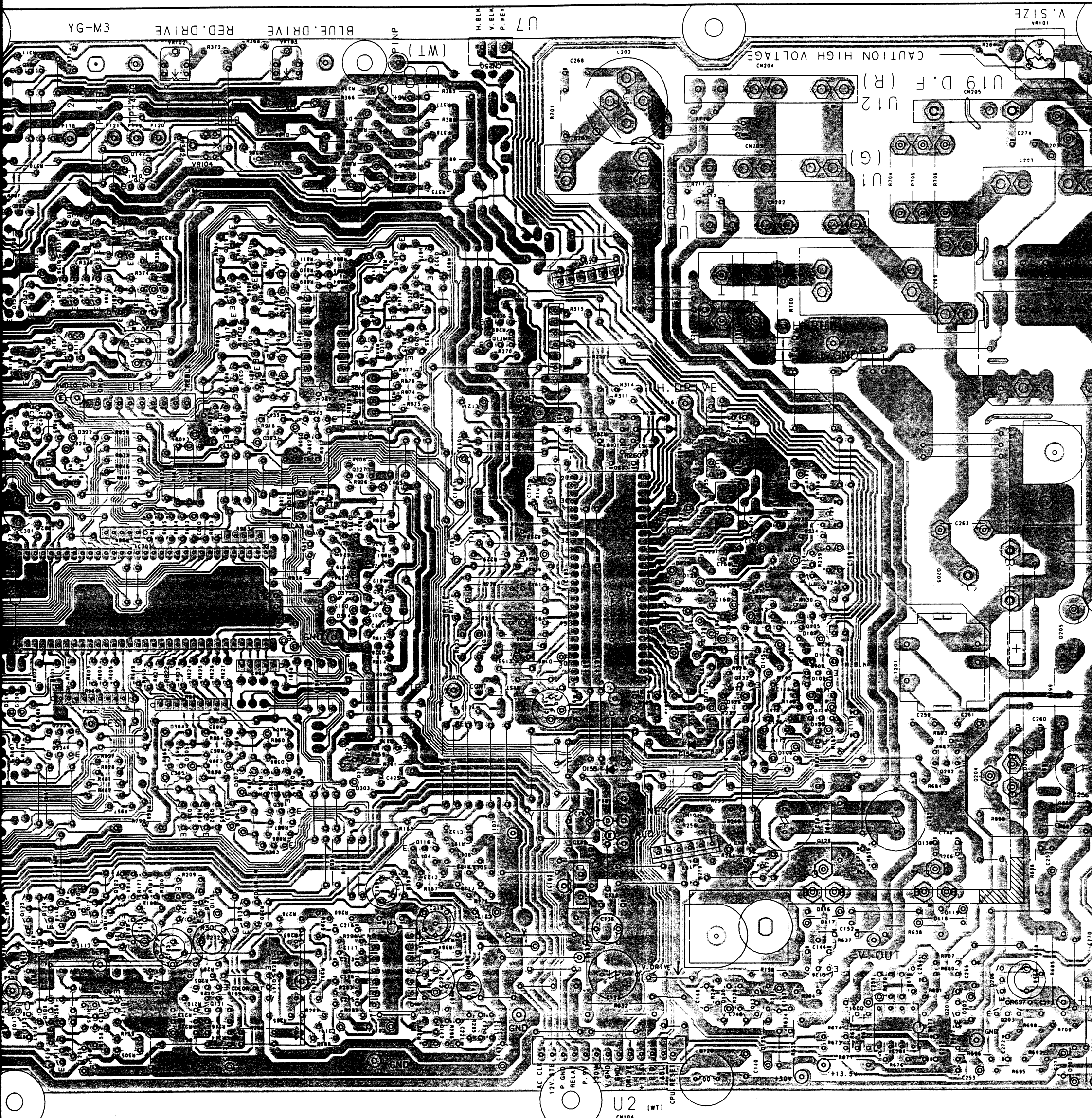
IC102

Q133 Q126 IC201 Q201 Q206 Q203

VR102 VR104 VR103

VR101

TC431



VIDEO • DEFLECTION ASSEMBLY (AWV1172)
 • FOR SD-P455-K TYPE

-

54



VR101 VR201

0133	0158	1C501	0501	0501
0135	0158	0110	0130	0505
0134	0102			0504

IC103

IC105

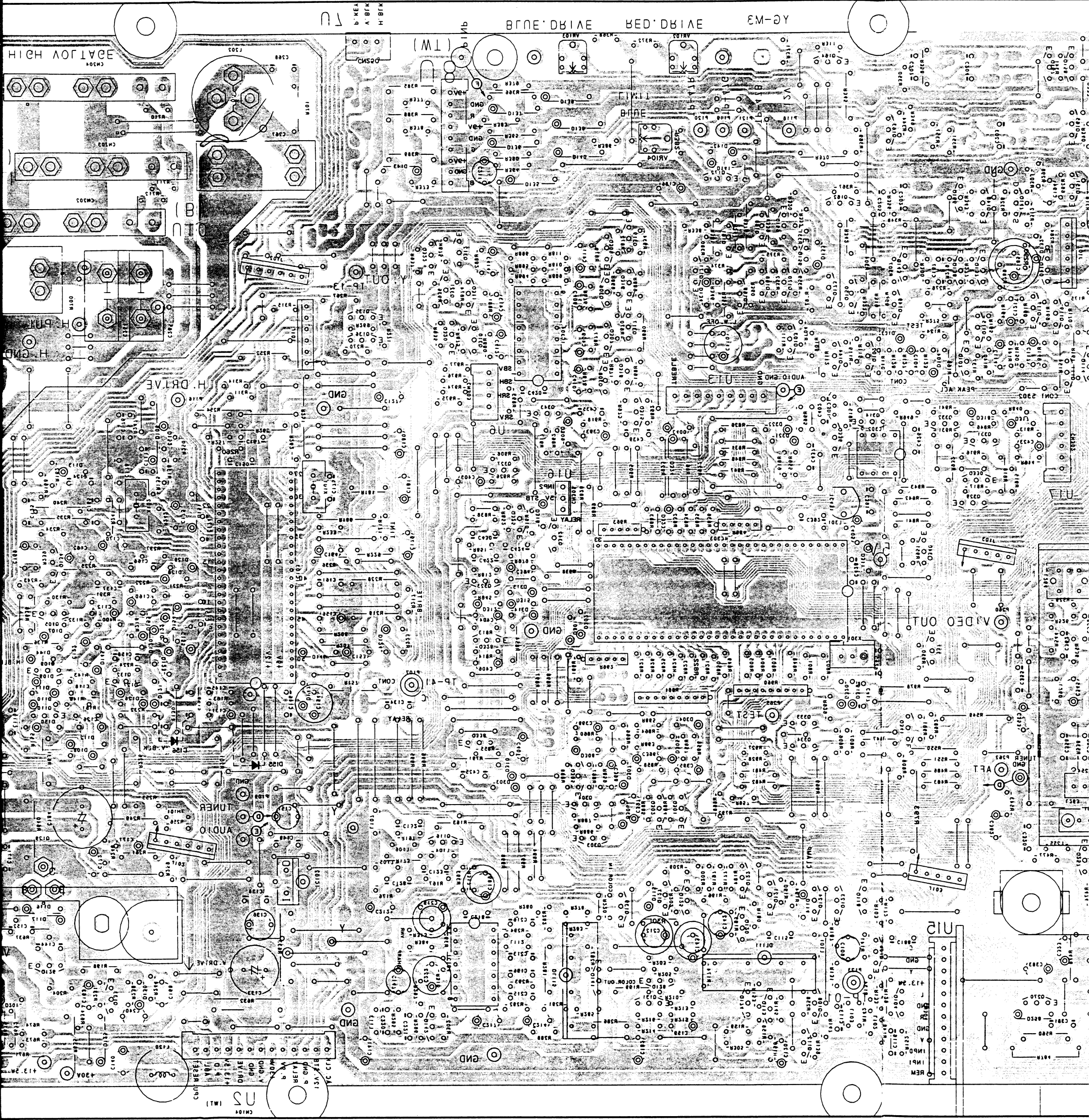
IC104 Q145

0338 0116
345 0352 0357 0353 0358

Q136
Q135

0315 0355

0343 1C304 0310 0350



Q520	Q104	Q108 Q115 Q113 Q114	Q158 Q131	Q141	IC104	Q145	IC105	Q138	Q158
	Q106 Q118	Q150 — Q152	Q157 Q138	Q301 — Q302	Q338 Q116	Q345 Q352 Q357 Q353 Q358	IC103	Q135	Q158 Q108 Q111
	Q337 Q341	Q333 Q334	IC303	Q312 Q318 Q308	Q343	Q311 Q351	Q136		
	Q143 Q148 Q188	Q143 Q148 Q150 Q173	Q188 — Q171	Q317 Q307	IC304 Q310 Q350	Q315 Q355	Q132		
	Q121	Q147 Q148 Q188	Q188	Q318 Q308					
	Q127 Q182								
	Q128 Q187								

foil side.

7. ADJUSTMENT

7.1 WHEN VIDEO • DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED

7.1.1 Video Section (SD-P4052-K/KUX1C)

- As to the FACTORY ADJ mode, refer to the section 9.1.
- Perform this adjustment after the Deflection section adjustment.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
5	ADJUSTMENT OFFSET mode	Multi burst	DETAL(*4)	Adjust the numerical value of telop to 30. *3
6	(PIONEER) Standard setting *1 *a		SHARP(*4)	At TP-05 (P110), set the rate of b (peak-to-peak value at 2MHz) to a (level from black to white) as follows. $a : b = 1 : 1.38 (2.8dB) \pm 2.3dB$ 

7.2 WHEN CRT ASSEMBLY R, G OR B IS REPLACED

- A spacer is required in procedure "2. Focus adjustment" to align the positions of the screen and the dummy screen with each other.

Step No.	Adjustment item	Input signal	Adjustment point	Adjustment procedure
2	Focus adjustment	Cross hatch	Replaced color focus VR (VR1) and lens assembly connected to replaced CRT assembly.	Adjust the focus of the replaced CRT assembly to optimum condition. (Shifting the convergence position may provide easier observation. Be sure to return it to the original position after the adjustment is completed.)

Note : Attach the sheets of semitransparent paper on both sides of the 10-mm spacer to align the positions of the screen and the dummy screen. For the spacer, use something with a thickness of 10-mm.

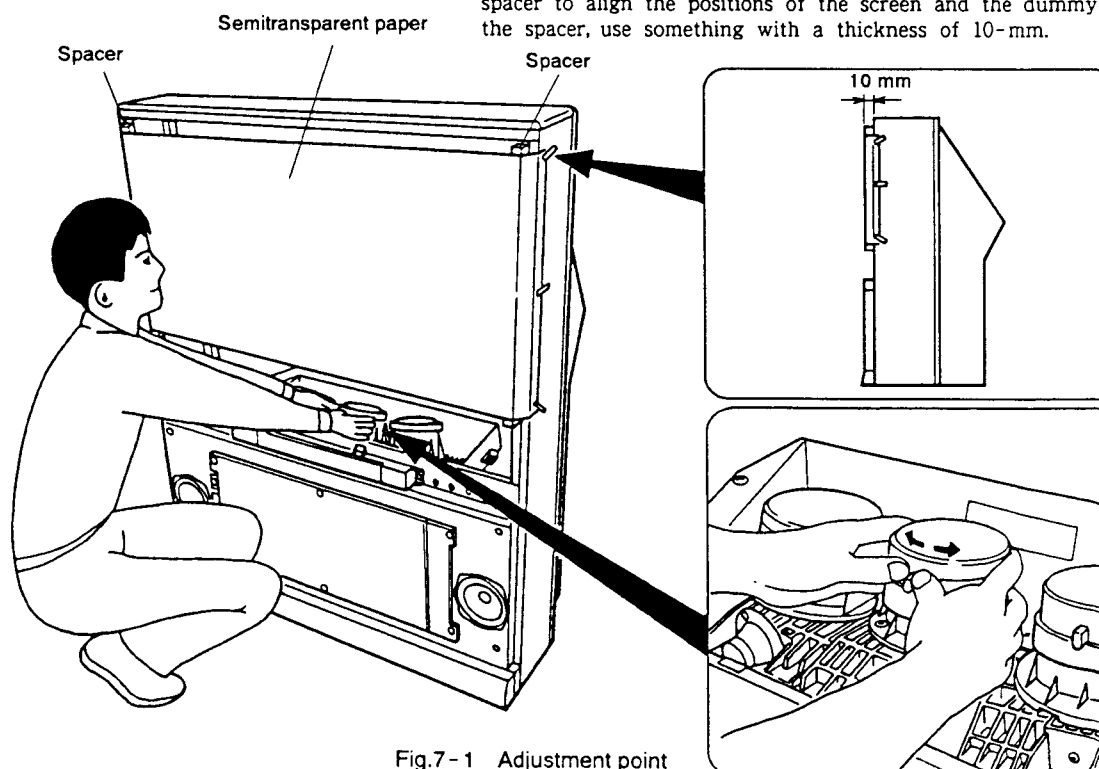
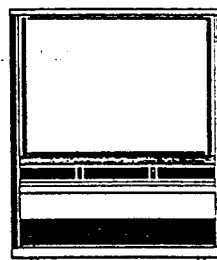


Fig.7-1 Adjustment point

Service Manual

PIONEER
The Art of Entertainment



ORDER NO.
ARP2273

PROJECTION MONITOR RECEIVER

SD-P4053-K

SD-P4053-K, SD-P4051-K AND SD-P4005 HAVE THE FOLLOWING :

Type	Model			Power requirement	Remarks
	SD-P4053-K	SD-P4051-K	SD-P4005		
KUX1C	○	○	—	AC 120V only	
S	—	—	○	AC 110V, 120V, 220V, 240V (switchable)	

- This manual is applicable to the SD-P4053-K/KUX1C type.
- As to the other types, refer to applicable service manuals.
- This manual is combined with operating instructions (from page 135).

CONTENTS

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PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan
PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.
PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada
PIONEER ELECTRONIC (EUROPE) N.V. Keelberglaan 1, 9120 Beveren, Belgium
PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911
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This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SAFETY PRECAUTIONS

NOTICE: Comply with all cautions and safety related notes located on or inside the cabinet and on the chassis or picture tube.

The following precautions should be observed:

1. Do not install, remove, or handle the picture tube in any manner unless shatterproof goggles are worn. People not so equipped should be kept away while picture tubes are handled.
Keep picture tube away from the body while handling.
2. When service is required, even though the SD-P4053-K an isolation transformer should be inserted between power line and the set in safety before any service is performed.
3. When replacing a chassis in the set, all the protective devices must be put back in place, such as barriers, nonmetallic knobs, adjustment and compartment covershields, isolation resistor-capacitor, etc.
4. When service is required, observe the original lead dress.
Extra precaution should be taken to assure correct lead dress in the high voltage circuitry area.
5. Always use the manufacturer's replacement components.
Especially critical components as indicated on the circuit diagram should not be replaced by other manufacture's.
Furthermore where a short circuit has occurred, replace those components that indicate evidence of overheating.

6. Before returning a serviced set to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the set by the manufacturer has become defective, or inadvertently defeated during servicing.

Therefore, the following checks should be performed for the continued protection of the customer and service technician.

Leakage Current Cold Check

With the AC plug removed from the 120V AC 60Hz source, place a jumper across the two plug prongs. Turn the AC power switch on. Using an insulation tester (DC 500V), connect one lead to the jumpered AC plug and touch the other lead to each exposed metal part (input/output terminals, screwheads, metal overlays, control shafts, etc.), particularly any exposed metal part having a return path to the chassis. Exposed metal parts having a return path to the chassis should have a minimum resistor reading of $0.3M\Omega$ and a maximum resistor reading of $5M\Omega$. Any resistor value below or above this range indicates an abnormality which requires corrective action. Exposed metal parts not having a return path to the chassis will indicate an open circuit.

3. CHARGED SECTION, HIGH VOLTAGE GENERATING POINT AND X-RAY PROTECTION

■ Charged section

The circuit in which the commercial AC power is used as it is without passing through the power supply transformer. If the charged section is touched, there is a risk of electric shock. In addition, the measuring equipment can be damaged if it is connected to the GND of the charged section and the GND of the non-charged section while connecting the set directly to the commercial AC power supply. In this case, be sure to connect the set via an insulated transformer and supply the current.

■ Charged section

(Power supply primary side)

1. The primary side of the POWER SUPPLY assembly
AWV1203
2. AC power cord
ADG1056

part is the charged section.

part is the high voltage generating points other than the charged section.

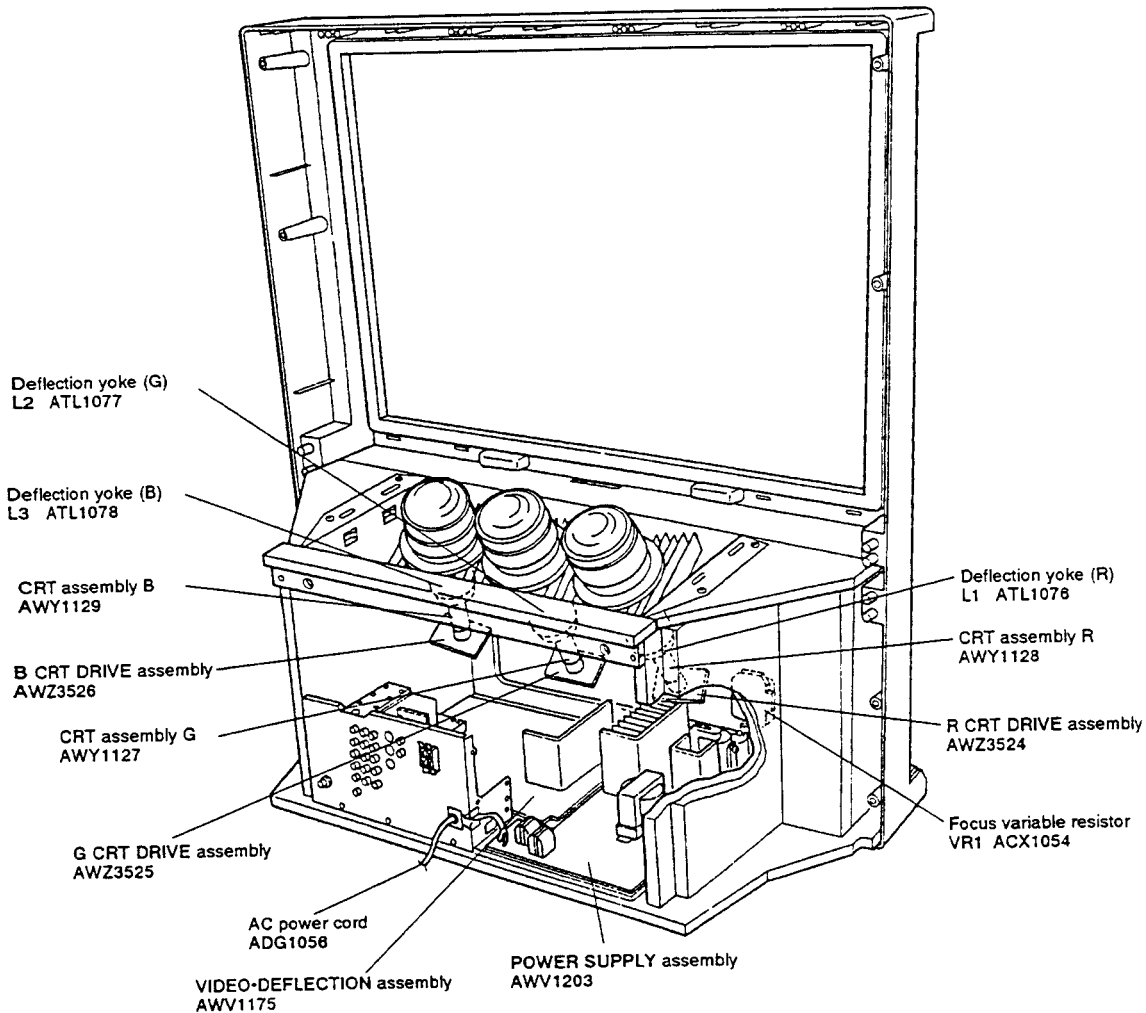
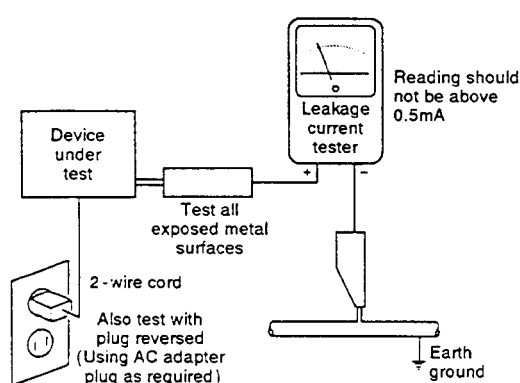


Fig. 3-1 Charged section and high voltage generating point

Leakage Current Hot Check

Plug the AC line cord directly into a 120V AC 60Hz outlet (do not use an isolation transformer for this check). Turn the AC power switch on. Using a "Leakage Current Tester (Simpson Model 229 equivalent)", measure for current from all exposed metal parts of the cabinet (input/output terminals, screwheads, metal overlays, control shaft, etc.), particularly any exposed metal part having a return path to the chassis, to a known earth ground (water pipe, conduit, etc.). Any current measured must not exceed 0.5mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE SET TO THE CUSTOMER.

High Voltage

This set is provided with a X-ray protection for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this X-ray protection may correctly be operated.

Serviceman Warning

In the status of the black picture (video muting is being applied) when no signal is input, high voltage of this set during operation is less than 31.4kV. In case any component having some relation to the high voltage is replaced, confirm that the high voltage is lower than 31.4kV in the status of the black picture when no signal is input.

X-radiation

TUBE: The primary source of X-radiation in this set is the picture tube.

For continued X-radiation protection, the replacement tube must be the same type as the original, PIONEER approved type.

The picture tube (CRT assembly R, G, B) used in this set holds complete guarantee against X-ray radiation when the X-ray is sealed (See on page 5). Accordingly, when the current is flowing to the picture tube (CRT assembly R, G, B), be sure to perform it by putting the tube into X-ray sealed applied state. Avoid absolutely to flow the current to the picture tube (CRT assembly R, G, B) itself. Moreover, when the voltage of the high voltage circuit becomes abnormally a little higher, the picture tube radiates X-rays. Accordingly, when servicing the high voltage circuit be sure to replace as an assembly with the POWER SUPPLY assembly (AWV1203) in the manner in which has been adjusted to perform normal operation.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in PIONEER set have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a Δ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, X-radiation, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

■ High voltage generating point

The place where voltage of over 100V is generated.

1. Charged section
2. POWER SUPPLY assembly (including FBT)
AWV1203 (31.0kV, 135V)
3. R CRT DRIVE assembly
AWZ3524 (10.5kV)
4. G CRT DRIVE assembly
AWZ3525 (10.5kV)
5. B CRT DRIVE assembly
AWZ3526 (10.5kV)
6. CRT assembly R
AWY1128 (31.0kV)
7. CRT assembly G
AWY1127 (31.0kV)
8. CRT assembly B
AWY1129 (31.0kV)
9. Focus variable resistor (VR1)
ACX1054 (10.5kV)
10. Deflection yoke
ATL1076 (L1:R) (Approx. 1100V at peak)
ATL1077 (L2:G)
ATL1078 (L3:B)
11. VIDEO•DEFLECTION assembly
(Horizontal deflection block)
AWV1175 (Approx. 1100V at peak, 135V)

■ X-ray protection

- Regarding the parts which are relative to radiation of X-rays (There is the danger to radiate X-ray from the individual CRT assembly R, G, B), there are notifications of caution in the individual schematic diagrams. Be sure to read them for safety's sake.
- The component parts for X-ray protection are as follows :When the current flows to the CRT assembly R, G, B, be sure to perform it with these parts being attached. Protection from the X-ray radiation is maintained in the state in which these parts have been installed to the CRT assembly R, G, B. Accordingly, never supply current only to the CRT assembly R, G, B. Moreover, the anode voltage of the CRT assembly R, G, B should always be kept not higher than the predetermined value (in the minimum brightness and picture state when non signal input is higher than 31.4kV). Be sure to drive the CRT assembly R, G, B by using a completely functional POWER SUPPLY assembly (AWV1203) which has been adjusted completely in the combined state. (When the voltage abnormally becomes high, the X-ray protection circuit will operate.)

1. CRT assembly R, G, B (Do not dismantle CRT assemblies under any circumstances).
2. Lens assembly 40 (R), (G), (B)

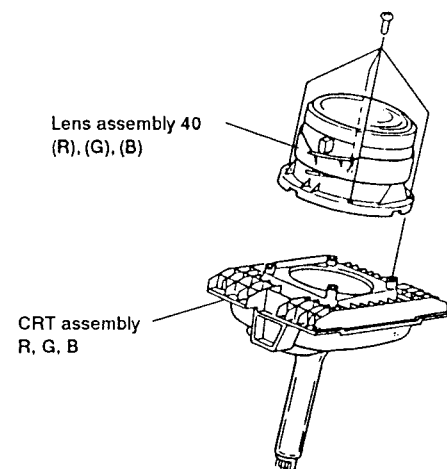


Fig. 3-2 Component parts for X-ray protection

4. HOW TO CLEAN

Note:

Cleaning liquid B4 (GEM1004) for LD players is usable for projection TV display.

Jigs

Use the following for cleaning optical components such as lens, mirror and screen.

Name	Number
Cleaning cloth, MINIMAX	GED-009
Cleaning liquid, B4	GEM1004

Note: Wear gloves when holding optical components lest you should make fingerprints.

4.1 Method of Cleaning Lenses and Mirrors

1. Remove dust with an airbrush.
2. Apply some cleaning liquid to the cloth and wipe the dirt off with the cloth.
3. If the component is not so dirty, moisten it with breath and wipe it with the cloth.

Note: Wipe it softly lest you should scratch the lens.

4.2 Screen Cleaning

1. Apply the cleaning liquid to the above cloth or similar soft cloth and wipe the dirt off with the cloth.
2. Apply de-electrifier to the rear-surface or fresnellens side of the screen, or dust will stick on it.

Note:

- (1) Apply no alcoholic liquid such as thinner and benzine to the front surface lest the black printing on the rear surface should come off.
- (2) Use Ascetete-cloth tape, GYH1001, for sticking Fresnel lens and lenticular sheet together.

NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.

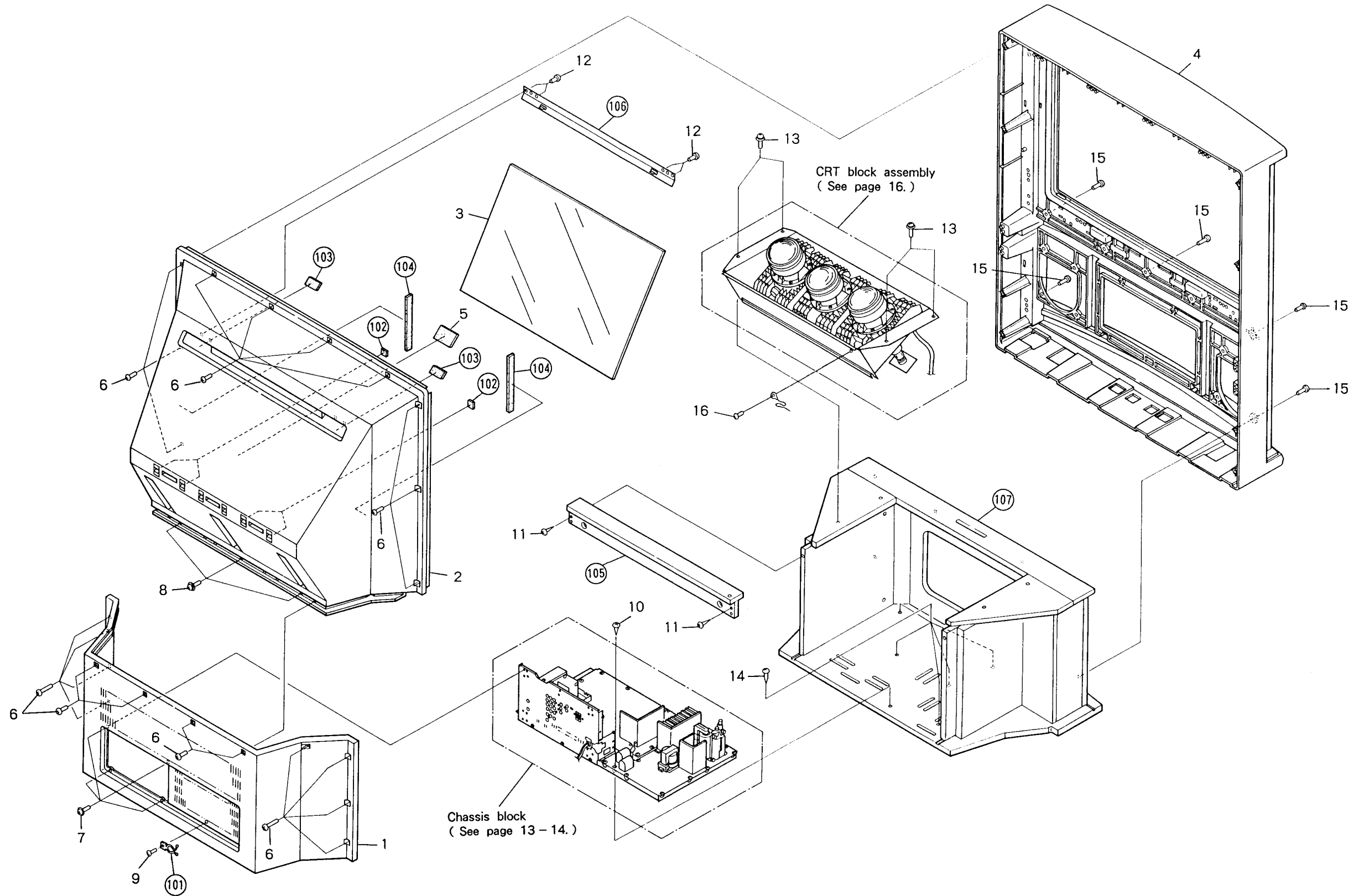
Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Door	AAN1122		101	Screen frame (K)	
	2	Badge	AAM1033		102	Screen holder	
	3	Plate B	AAK1705		103	Blind plate	
	4	Plate C	AAK1706		104	Stay	
	5	Plate A	AAK2145		105	Binder	
	6	Front panel	AMB1475		106	S spacer	
	7	Grille (K3)	AMB1803				
	8	Plate D	AAK2146				
	9	Fresnel	AMR2156				
	10	Lenticular sheet	AMR2159				
	11	Side panel L	AMB1476				
	12	Side panel R	AMB1477				
Δ	13	Focus variable resistor (VR1)	ACX1061				
	14	Speaker	APV1021				
	15	CONVERGENCE assembly	AWZ3523				
	16	Side cover assembly	AAP1183				
	17	Caster	AMR2127				
	18	Front cabinet assembly (K3)	AMB1804				
	19	Cushion	AEC1210				
	20	Front control assembly	AWZ3540				
	21	IR RECEIVER assembly	AWZ3543				
	22	FRONT INPUT TERMINAL assembly	AWZ3547				
	23	Screw	VPZ40P120FMC				
	24	Screw	BPZ30P120FZK				
	25	Screw	BYC35P120FZB				
	26	Screw	BBZ30P080FZK				
	27	Screw	VCZ30P060FMC				
	28	Screw	BYC40P200FMC				
	29	Catcher	AEC1012				
	30	Screw	APZ30P080FZK				
	31	Screw	VPZ40P120FMC				
	32	Cushion	AEC1366				

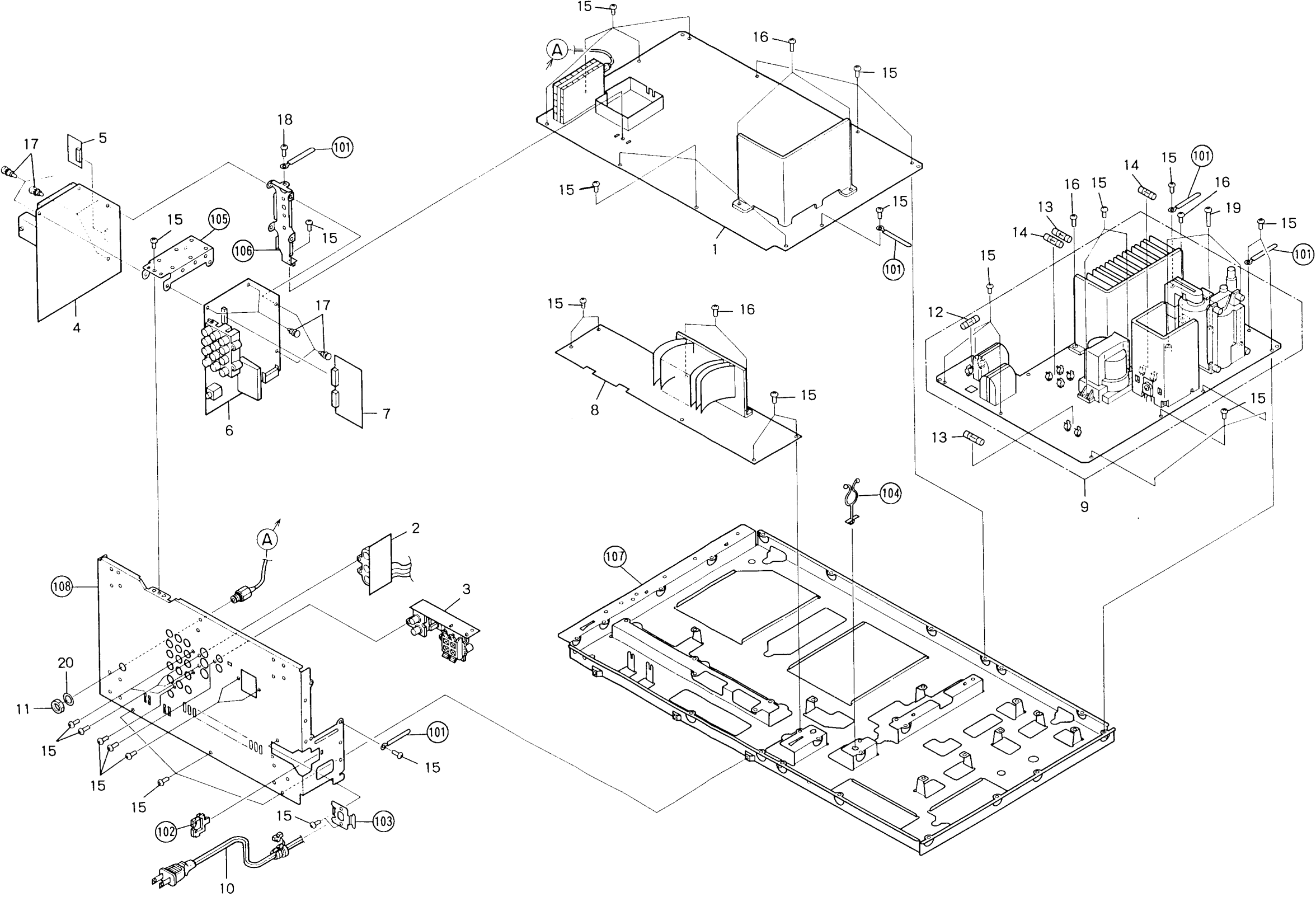
5.2 REAR VIEW

Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Rear cover	AME1036		101	Cable clip	
	2	Mirror case	AME1037		102	Cushion sheet A	
	3	Mirror	AMR1523		103	Cushion sheet B	
	4	Front cabinet assembly (K3)	AMB1804		104	Mirror cushion	
	5	Mirror case cushion	AEC1349		105	Shield plate	
	6	Screw	VPZ40P160FZK		106	Mirror holder stay	
	7	Screw	ABZ30P120FZK		107	CRT block	
	8	Screw	ABA1124				
	9	Screw	BBZ30P120FZK				
	10	Screw	BYC40P160FMC				
	11	Screw	BYC40P300FMC				
	12	Screw	ABA1069				
	13	M5 screw	ABA1122				
	14	Screw	ABA1121				
	15	Screw	PMB50P250FZB				
	16	Screw	VBT30P080FZK				



5.3 CHASSIS BLOCK



Parts List

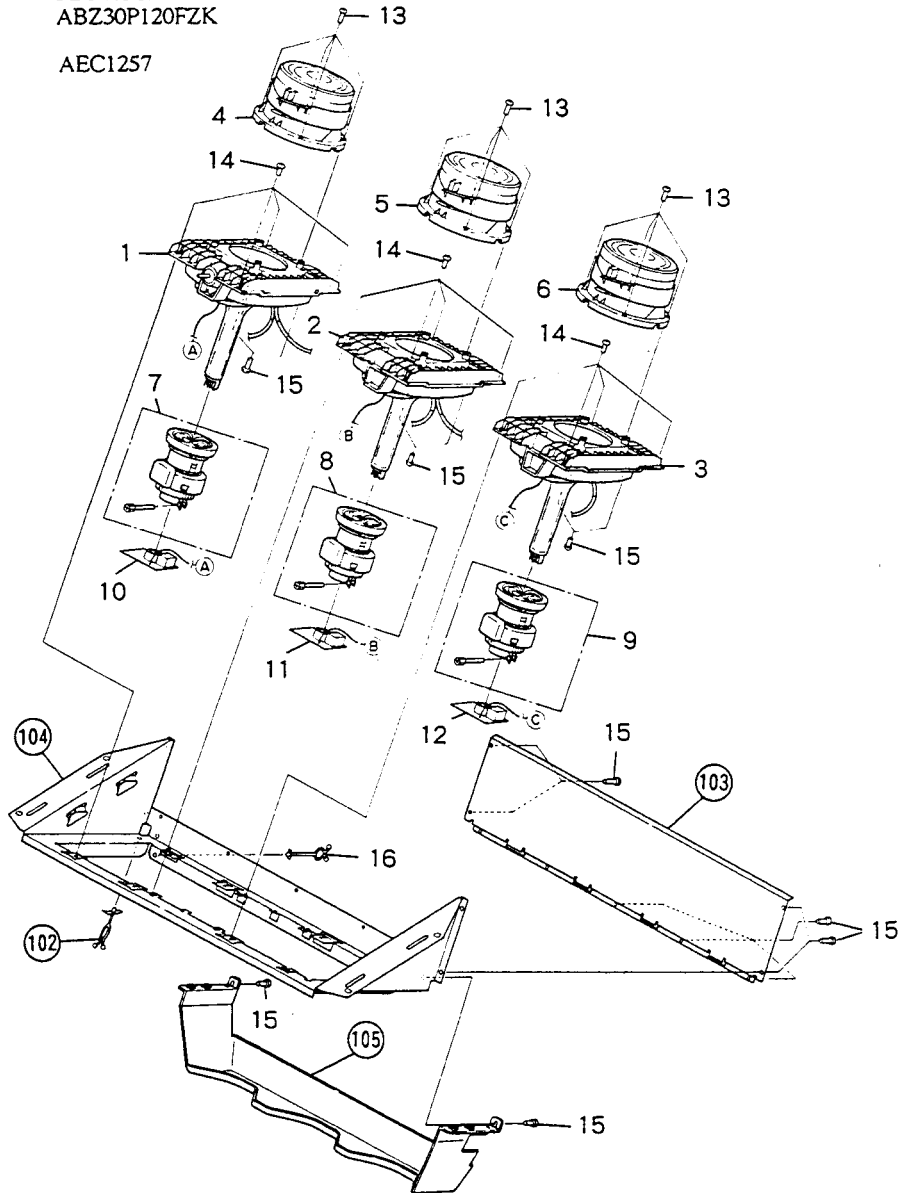
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	VIDEO•DEFLECTION assembly	AWV1175		101	Binder	
	2	S - 3P TERMINAL assembly	AWZ3532		102	Cord holder	
	3	SP TERMINAL assembly	AWZ3545		103	Cord plate	
	4	PINP assembly	AWZ3655		104	Cable clip	
					105	PCB frame	
	5	PINP SUB assembly	AWZ3656		106	PCB stand	
	6	AV I/O - 3P•Y/C SEP assembly	AWZ3529		107	Chassis	
	7	PINP SELECT assembly	AWZ3534		108	Rear panel	
	8	AUDIO•DSE assembly	AWZ3538				
☆	9	POWER SUPPLY assembly	AWV1203				
△	10	AC power cord	ADG1056				
	11	Nut	ABN - 087				
△	12	Fuse (8A,FU401)	AEK1002				
△	13	Fuse (6.3A/125V,FU403,FU405)	AEK - 309				
△	14	Fuse (4A/125V,FU404,FU406)	AEK1018				
	15	Screw	BBZ30P080FZK				
	16	Screw	ABA1099				
	17	Plastic rivet	AEC - 441				
	18	Screw	VCZ30P060FMC				
	19	Screw	VBZ30P200FMC				
	20	Washer	WAX0F160N100				

5.4 CRT ASSEMBLY BLOCK

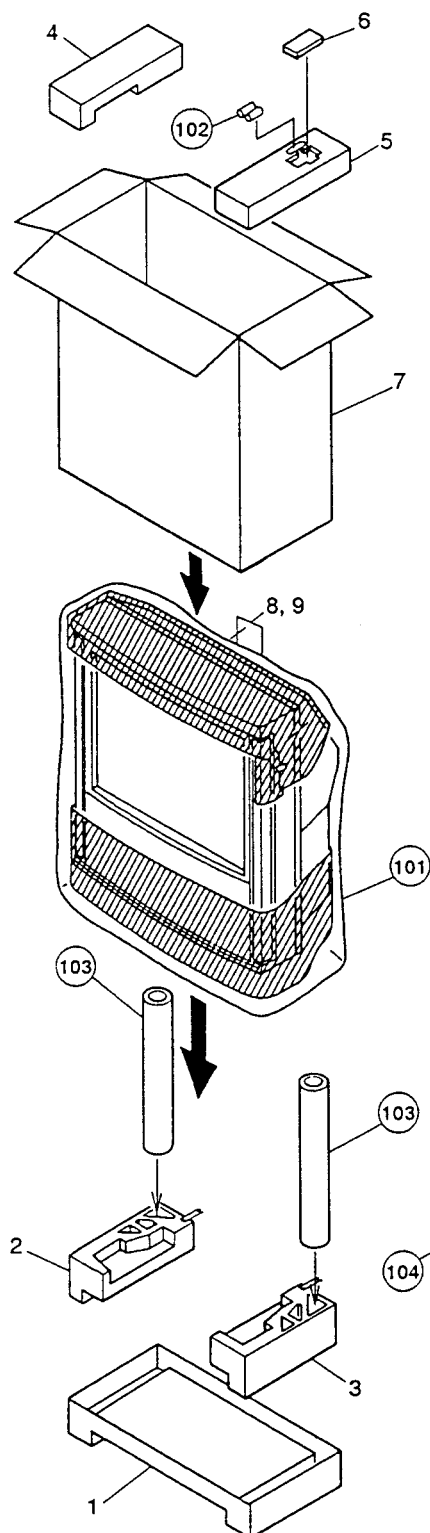
Parts List

Mark	No.	Description	Part No.
△☆	1	CRT assembly R	AWY1128
△☆	2	CRT assembly G	AWY1127
△☆	3	CRT assembly B	AWY1129
☆	4	Lens assembly 40 (R)	AMR2160
☆	5	Lens assembly 40 (G)	AMR2161
☆	6	Lens assembly 40 (B)	AMR2162
△	7	Deflection yoke (L1)	ATL1076
△	8	Deflection yoke (L2)	ATL1077
△	9	Deflection yoke (L3)	ATL1078
	10	R.CRT DRIVE assembly	AWZ3524
	11	G.CRT DRIVE assembly	AWZ3525
	12	B.CRT DRIVE assembly	AWZ3526
	13	Screw	AMZ40P080FZK
	14	Screw	FBT40P120FZK
	15	Screw	ABZ30P120FZK
	16	Cord holder	AEC1257

Mark	No.	Description	Part No.
	101	.....	
	102	Lead clasper	
	103	Cover L	
	104	CRT stand	
	105	Tray	



6. PACKING



Parts List

Mark	No.	Description	Part No.
	1	Under carton	AHD1686
	2	Under pad L	AHA1264
	3	Under pad R	AHA1265
	4	Upper pad L	AHA1262
	5	Upper pad R	AHA1263
	6	Remote control unit (CU-SD044)	AXD1199
	7	Upper carton	AHD2032
	8	Operating instructions (English)	ARB1309
	9	ATTENTION card	AMR1054
	101	Packing bag	
	102	Alkaline dry cell battery (LR6, AA)	
	103	Spiral tube	
	104	Punch card	

7. SCHEMATIC AND P.C. BOARDS DIAGRAM

1. RESISTORS:

Indicated in Ω , 1/4W, 1/6W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted k; Ω , M;M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.

2. CAPACITORS:

Indicated in capacity(μ F)/voltage(V)unless otherwise noted p;pF.
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

 ; Signal voltage at 10W+10W, 8 Ω output (1kHz)
 ; DC voltage(V)at no input signal without notice.
Value in () is color bar signal input state.
 ;DC current at no input signal without notice.

4. OTHERS:

- ;Signal route.
- ⊗ ;Adjusting point.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- ※ marked capacitors and resistors have parts numbers.
- This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.
- Parts marked by ☆ are important parts which relate with X-ray radiation. If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by x are important parts which relate with X-ray radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.
If any part marked by x is replaced, there is danger of being exposed to X-rays.
- Waveform ; Color bar input state.

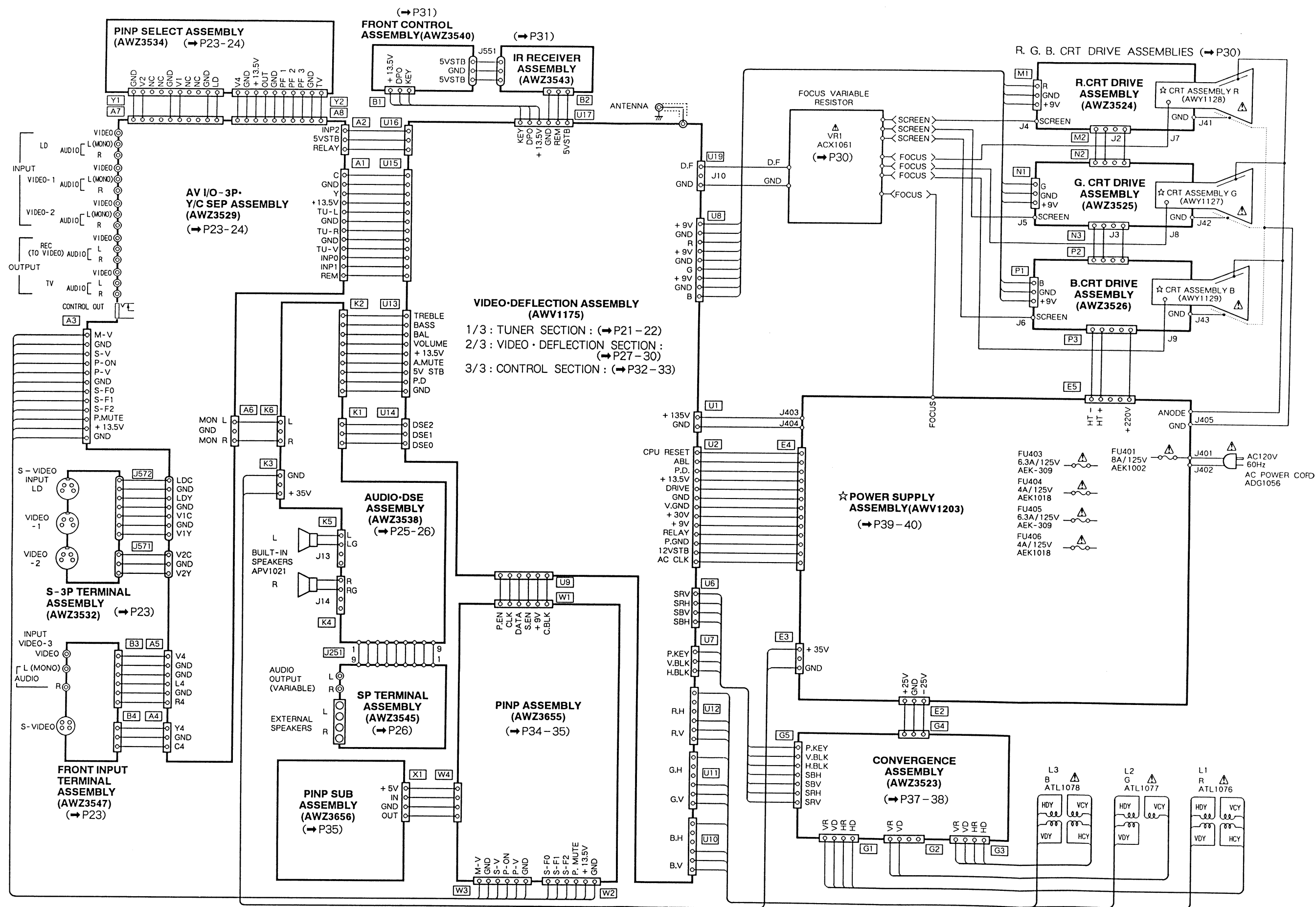
5. SIGNAL ROUTES

———— CHARGED SECTION
———— VIDEO & Y SIGNAL ROUTE
———— COLOR SIGNAL ROUTE
———— AUDIO IF ROUTE
- - - - AUDIO L CH ROUTE
- - - - H. DEFLECTION ROUTE
- - - - V. DEFLECTION ROUTE
R. SIGNAL ROUTE
G. SIGNAL ROUTE
B. SIGNAL ROUTE

6. SWITCHES:(The underlined indicates the switch position)

SP TERMINAL ASSEMBLY
S501:SPEAKER SELECTOR INT - EXT
FRONT CONTROL ASSEMBLY
S551:POWER
S552:PRESET MENU
S553:INPUT
S554:ON/OFF } DIGITAL PINP
S555:SET
S556:SELECT/ADJUST + } PRESET MENU
S557:SELECT/ADJUST - }
S558:FACTORY ADJ
S559:DPO
S560:STD/AV MEM
S561:VOLUME +
S562:VOLUME -
S563:CHANNEL +
S564:CHANNEL -
S565:INPUT SELECTOR
S566:PRESET MENU ON/OFF

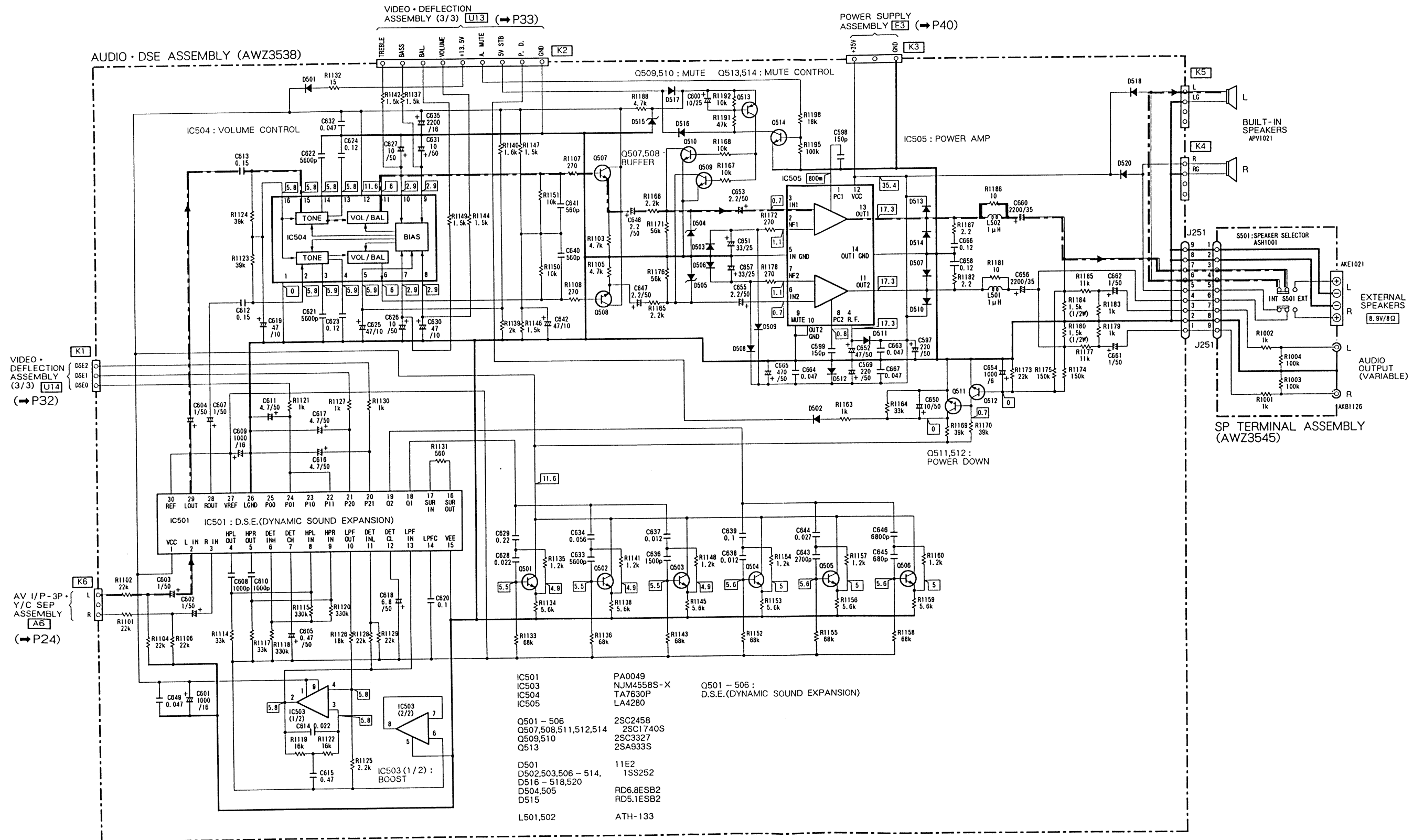
7.1 OVERALL WIRING DIAGRAM



6



7.4 AUDIO • DSE AND SP TERMINAL ASSEMBLIES



A

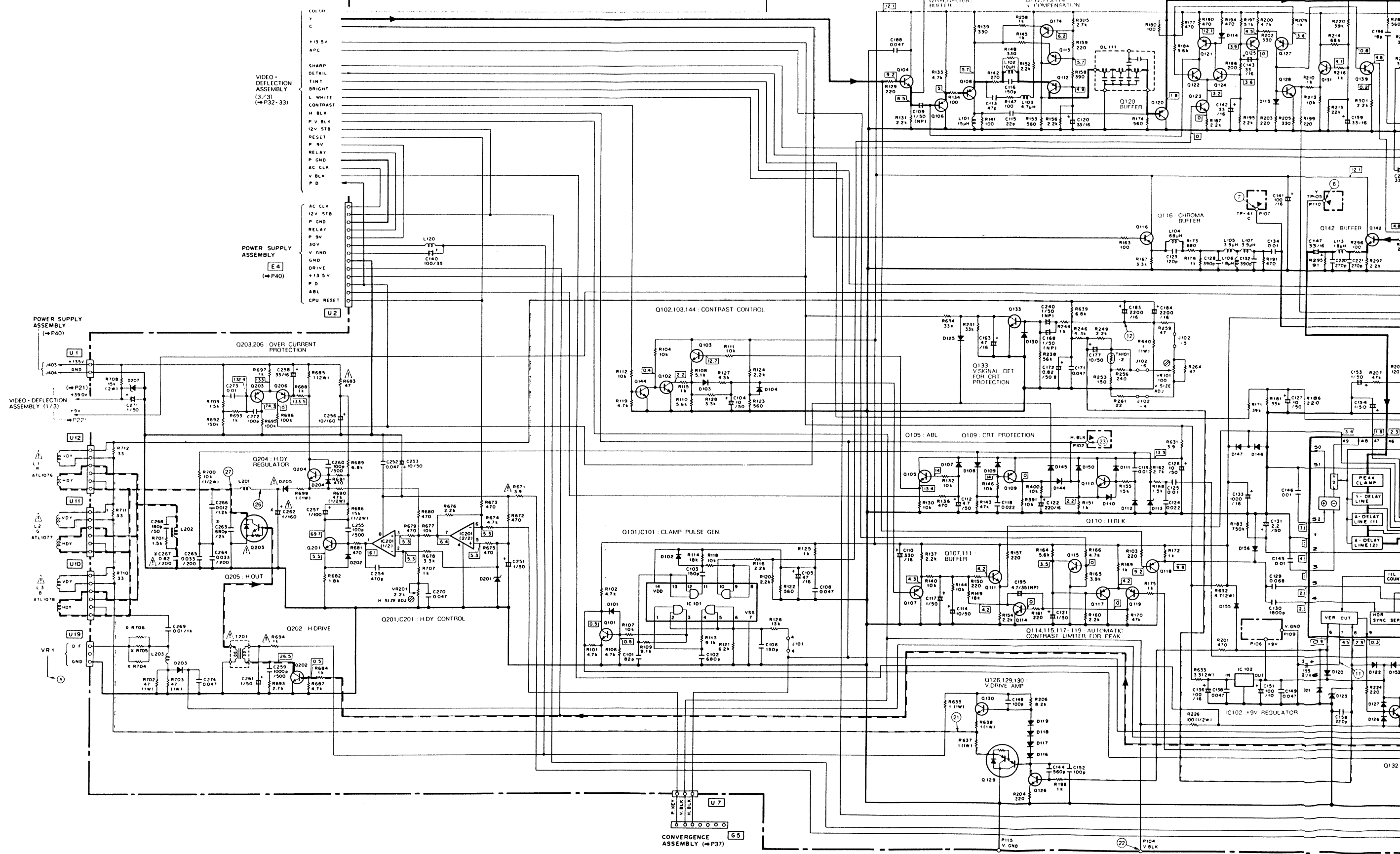
B

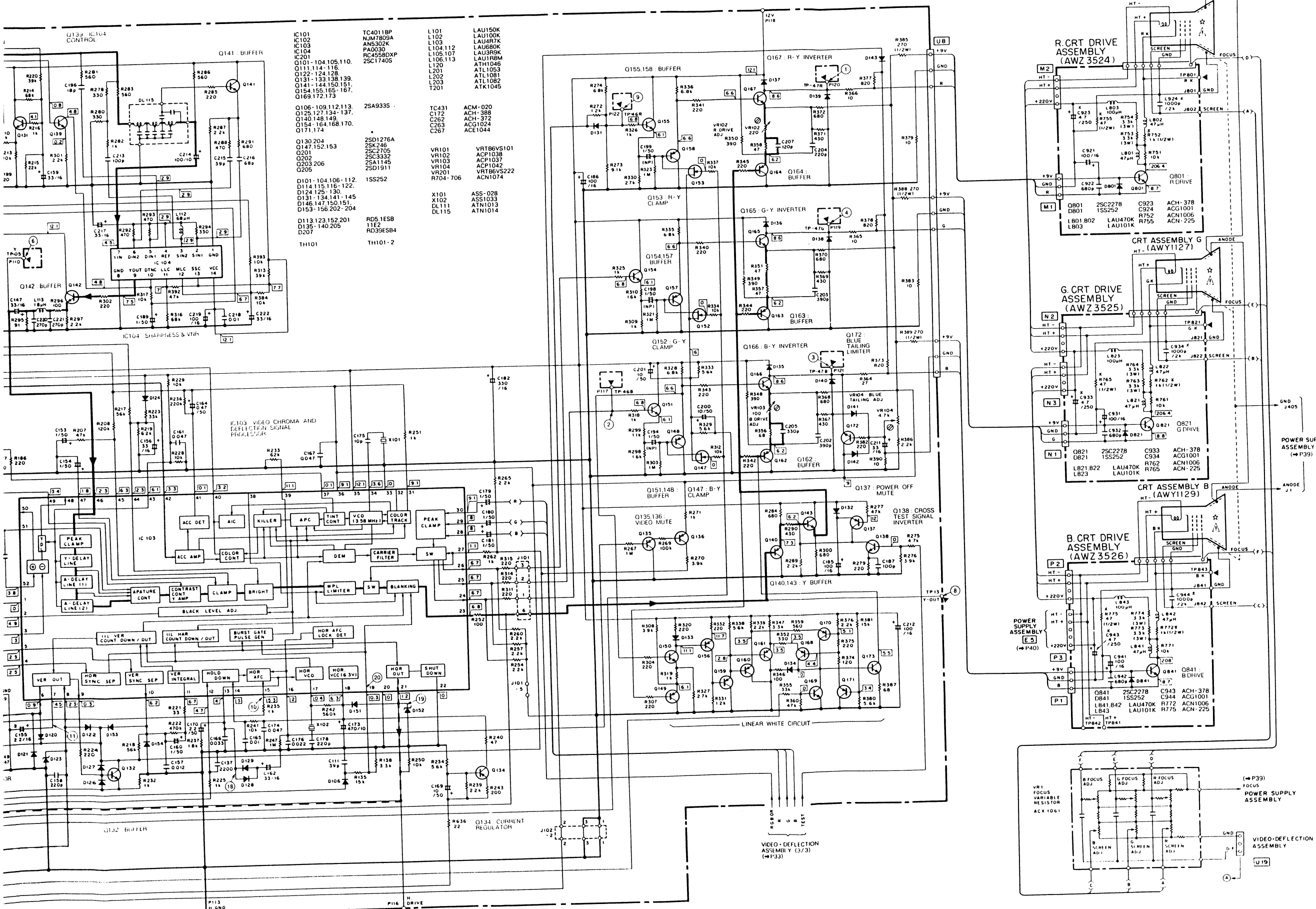
C

D

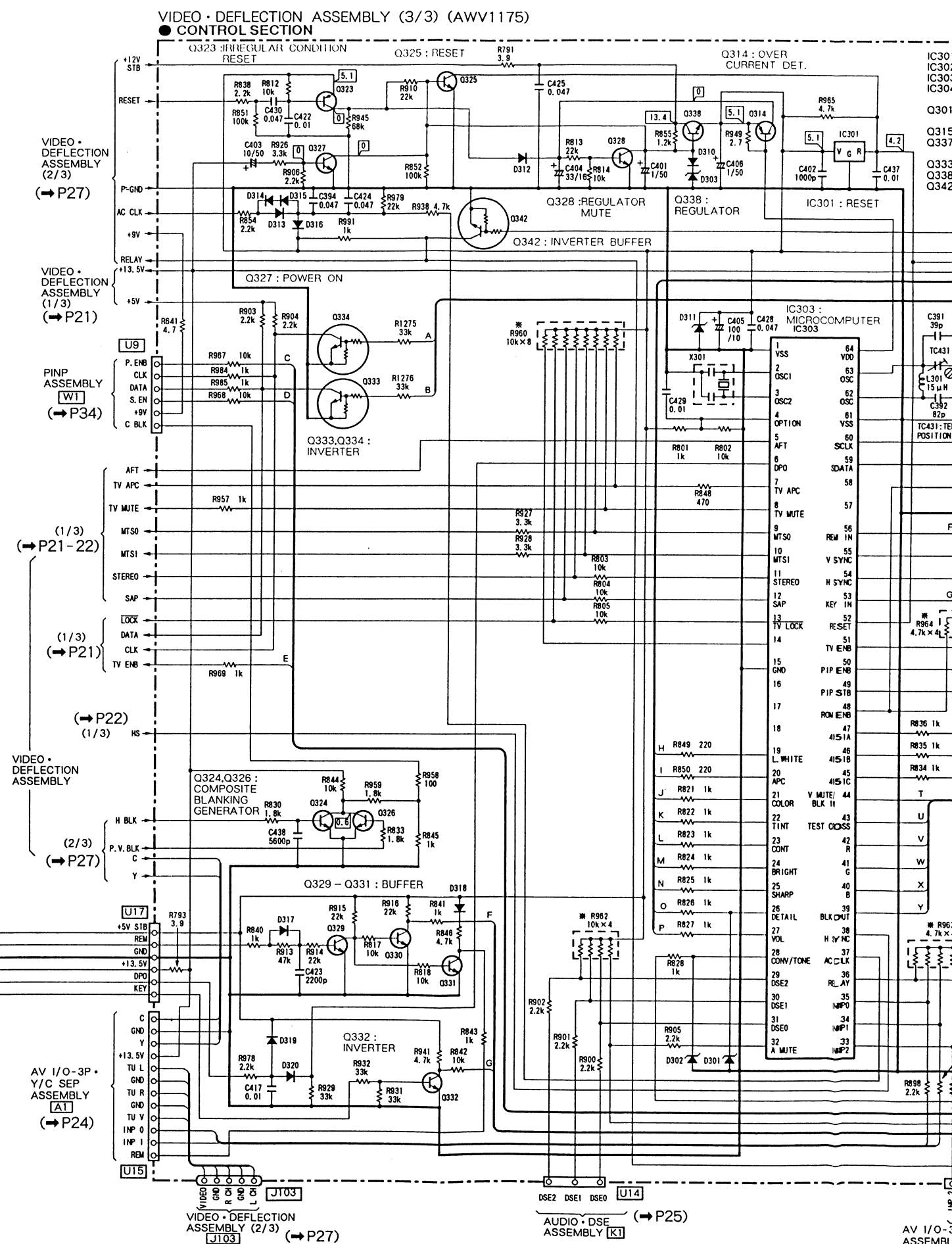
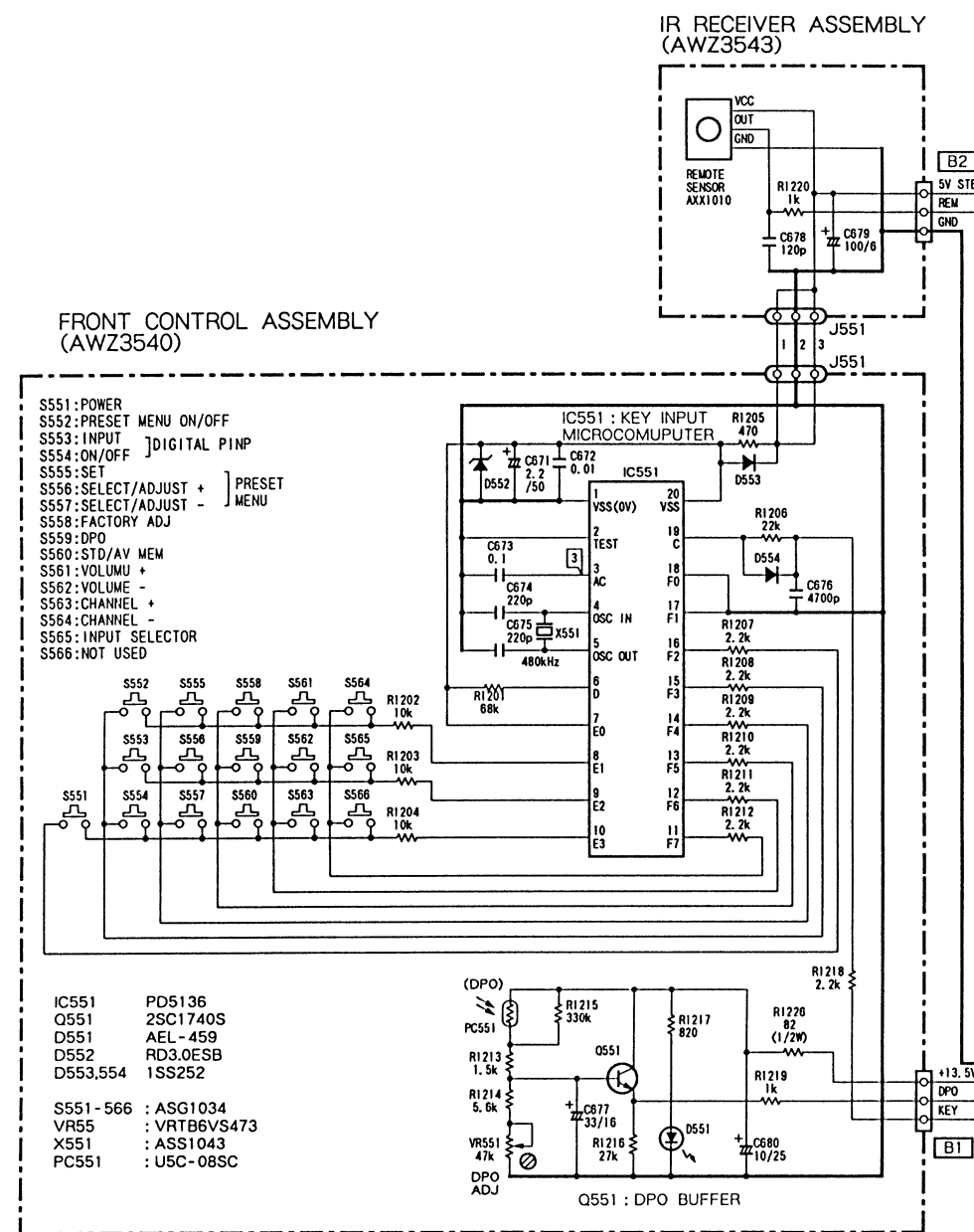
7.5 VIDEO • DEFLECTION ASSEMBLY (2/3 : VIDEO•DEFLECTION SECTION), R, G AND B CRT DRIVE ASSEMBLIES

VIDEO • DEFLECTION ASSEMBLY (2/3) (AWV1175)



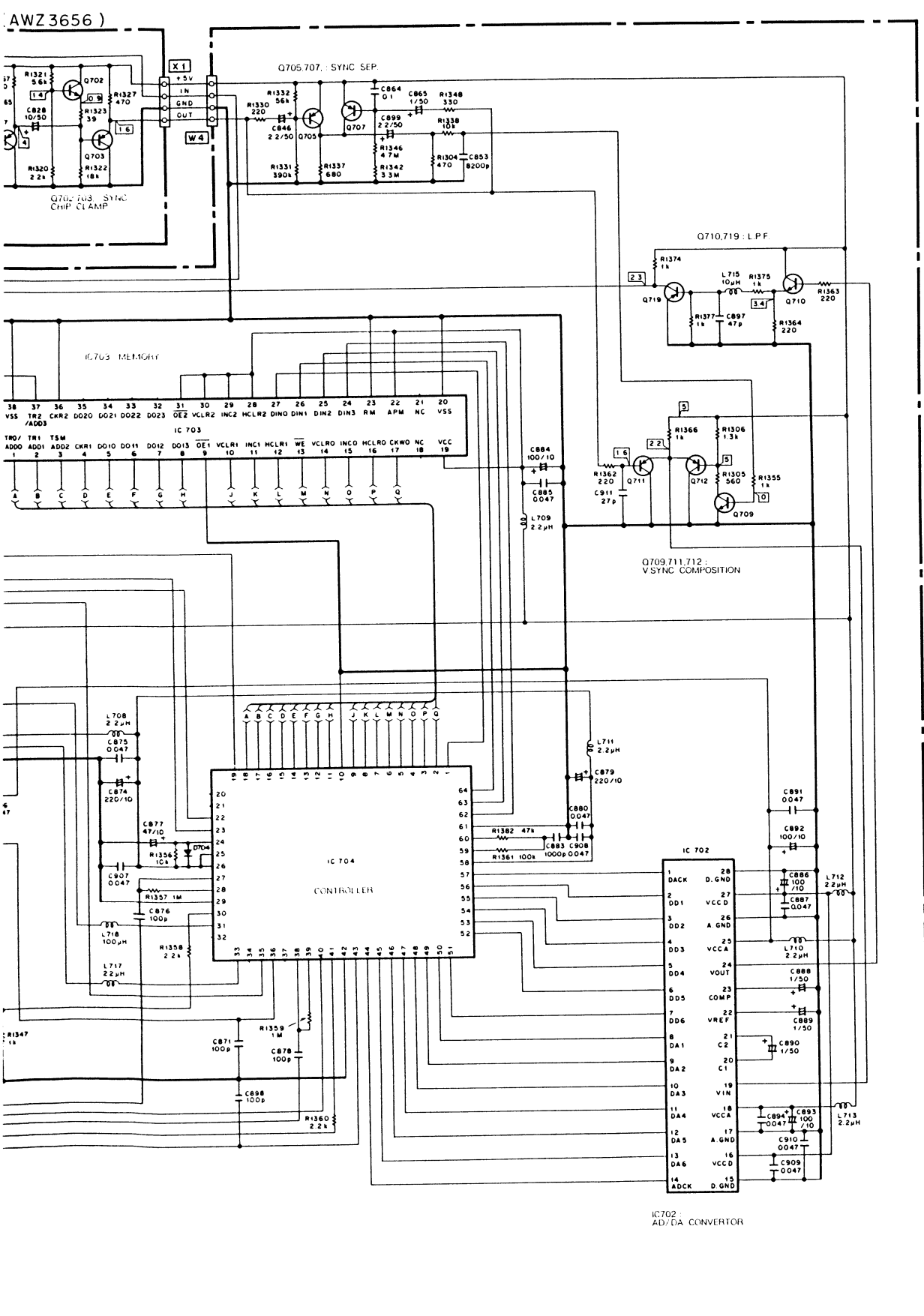


7.6 VIDEO • DEFLECTION ASSEMBLY (3/3 : CONTROL SECTION), FRONT CONTROL AND IR RECEIVER ASSEMBLIES



Q323 :IRREGULAR CONDITION
RESET





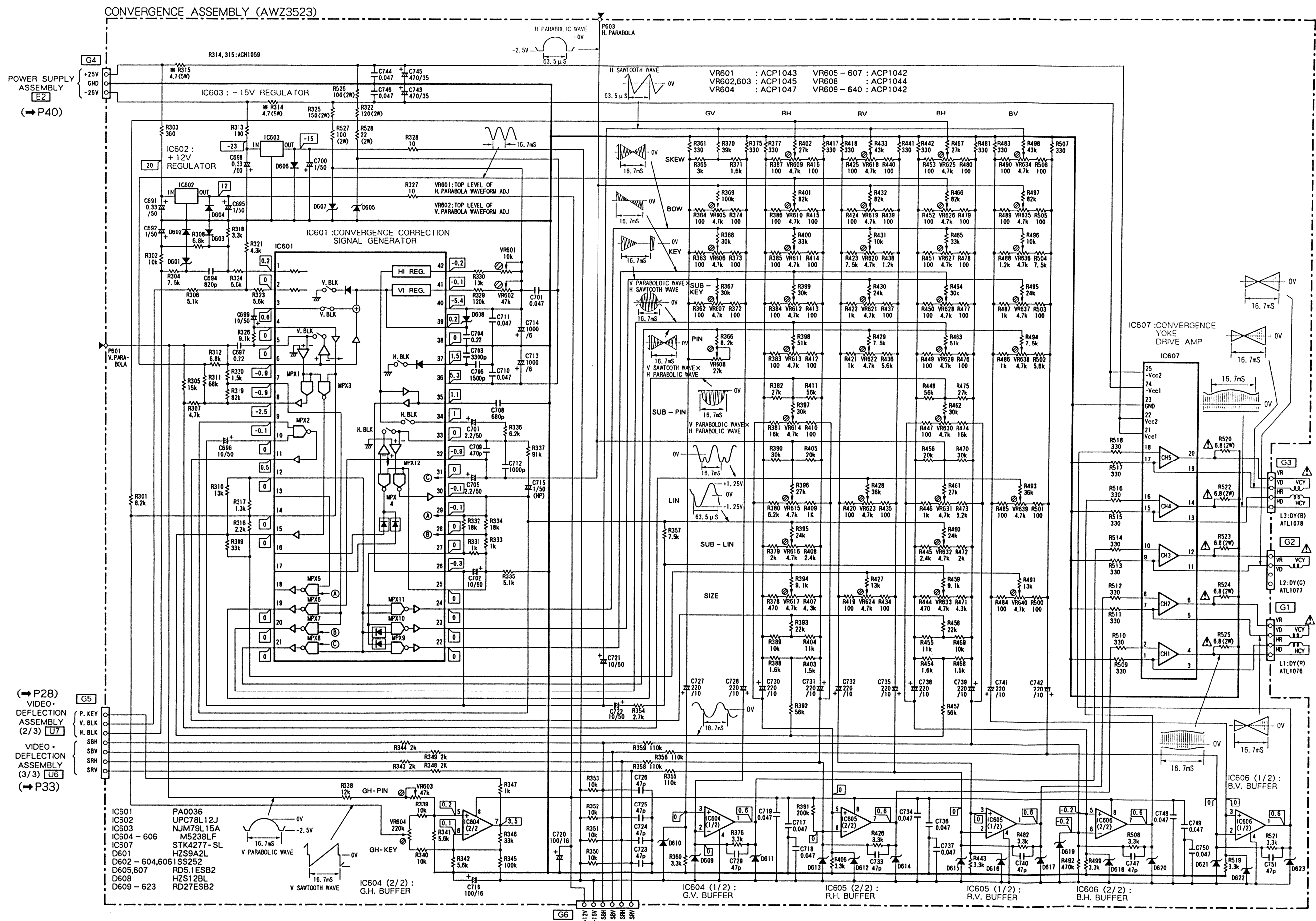
A

E

C

4

7.8 CONVERGENCE ASSEMBLY



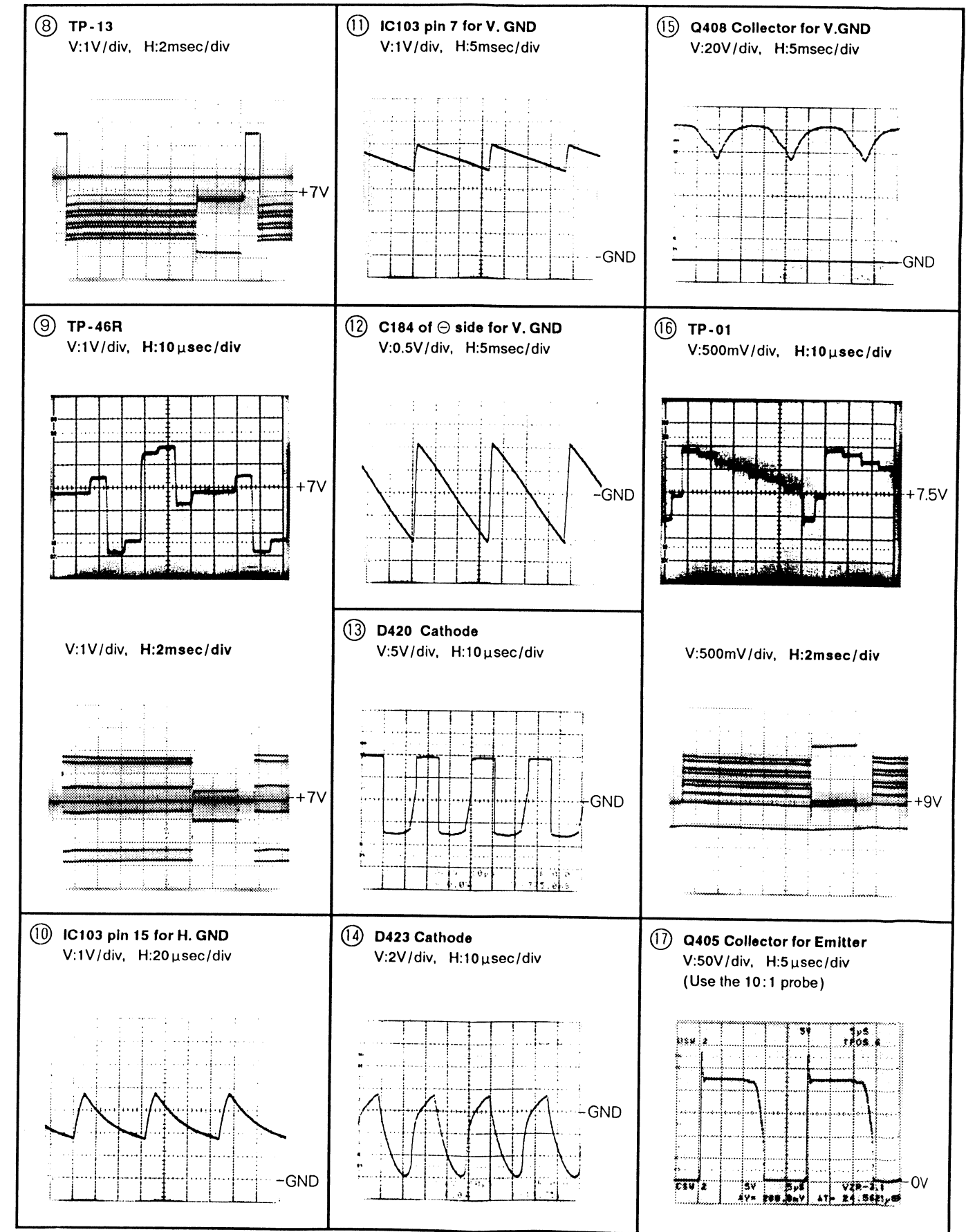
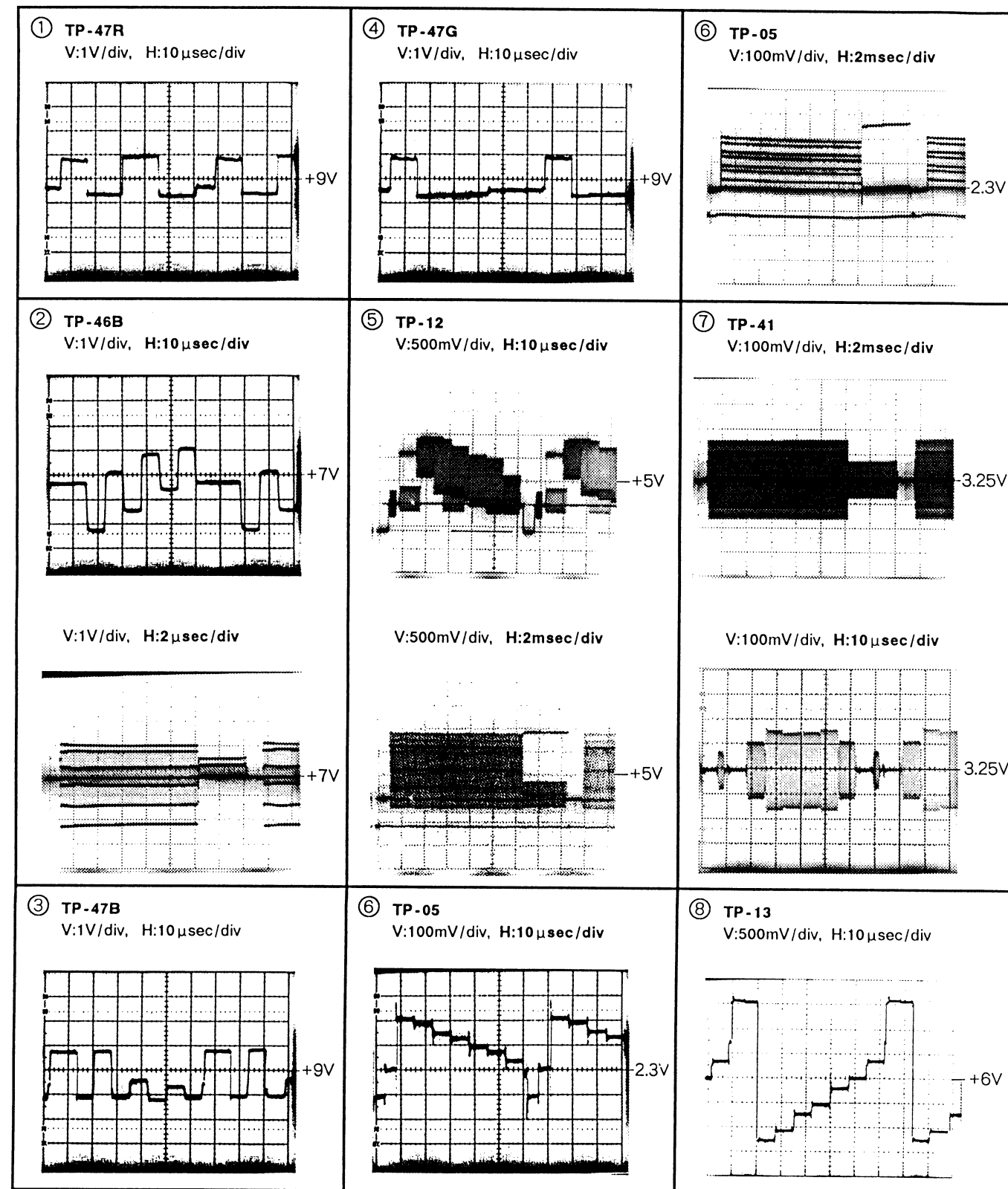


The waveforms at each position

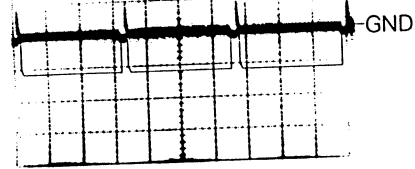
Input signal; color bar VDP input

Picture quality: standard

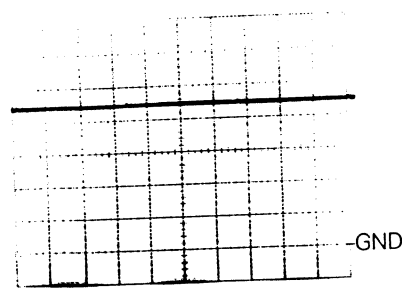
Range: DC range (without notice)



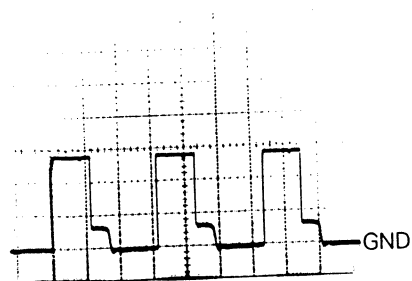
⑮ IC103 pin 13 (AFC) for H. GND
V:50mV/div, H:5msec/div
AC range



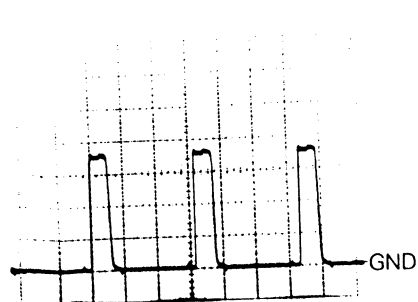
V:1V/div, H:5msec/div



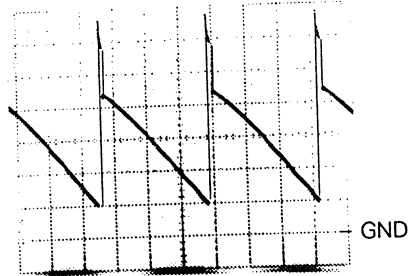
⑲ IC103 pin 21 (DRIVE) for H. GND
V:1V/div, H:20μsec/div



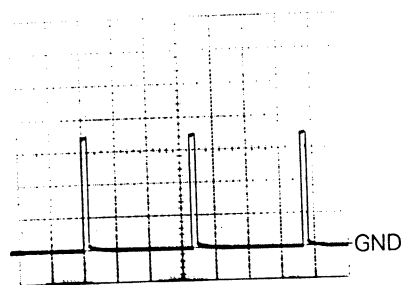
⑳ IC103 pin 19 for H. GND
V:0.5V/div, H:20μsec/div



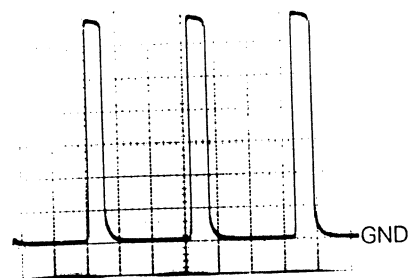
㉑ Between R637 and R638 (V.OUT) for V. GND
V:5V/div, H:5msec/div



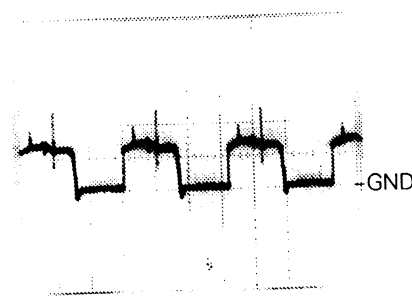
㉒ TP V. BLK for V. GND
V:2V/div, H:5msec/div



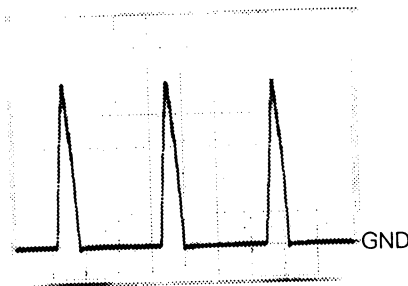
㉓ TP H. BLK for H. GND
V:2V/div, H:20μsec/div



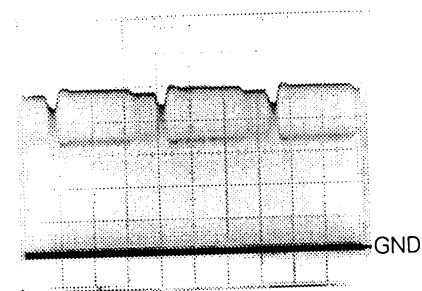
㉔ R136 (both sides)
V:0.2V/div, H:20μsec/div



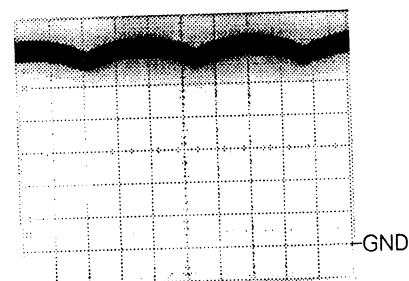
㉕ C460 (both sides)
V:200V/div, H:20μsec/div



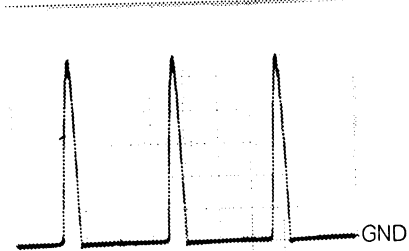
V:200V/div, H:5msec/div



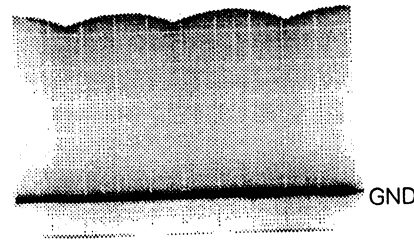
㉖ D205 Cathode for TP - H. GND
V:20V/div, H:5msec/div



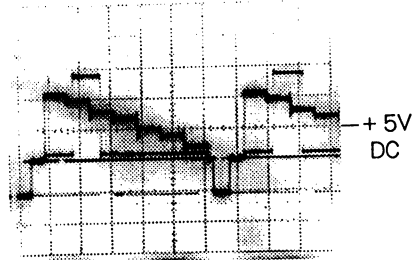
㉗ Q205 Collector for Emitter
V:200V/div, H:20μsec/div



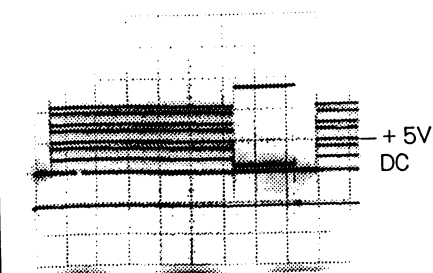
㉘ Q205 Collector for Emitter
V:200V/div, H:5msec/div



㉙ TP-01
V:500mV/div, H:10μsec/div



V:500mV/div, H:2msec/div



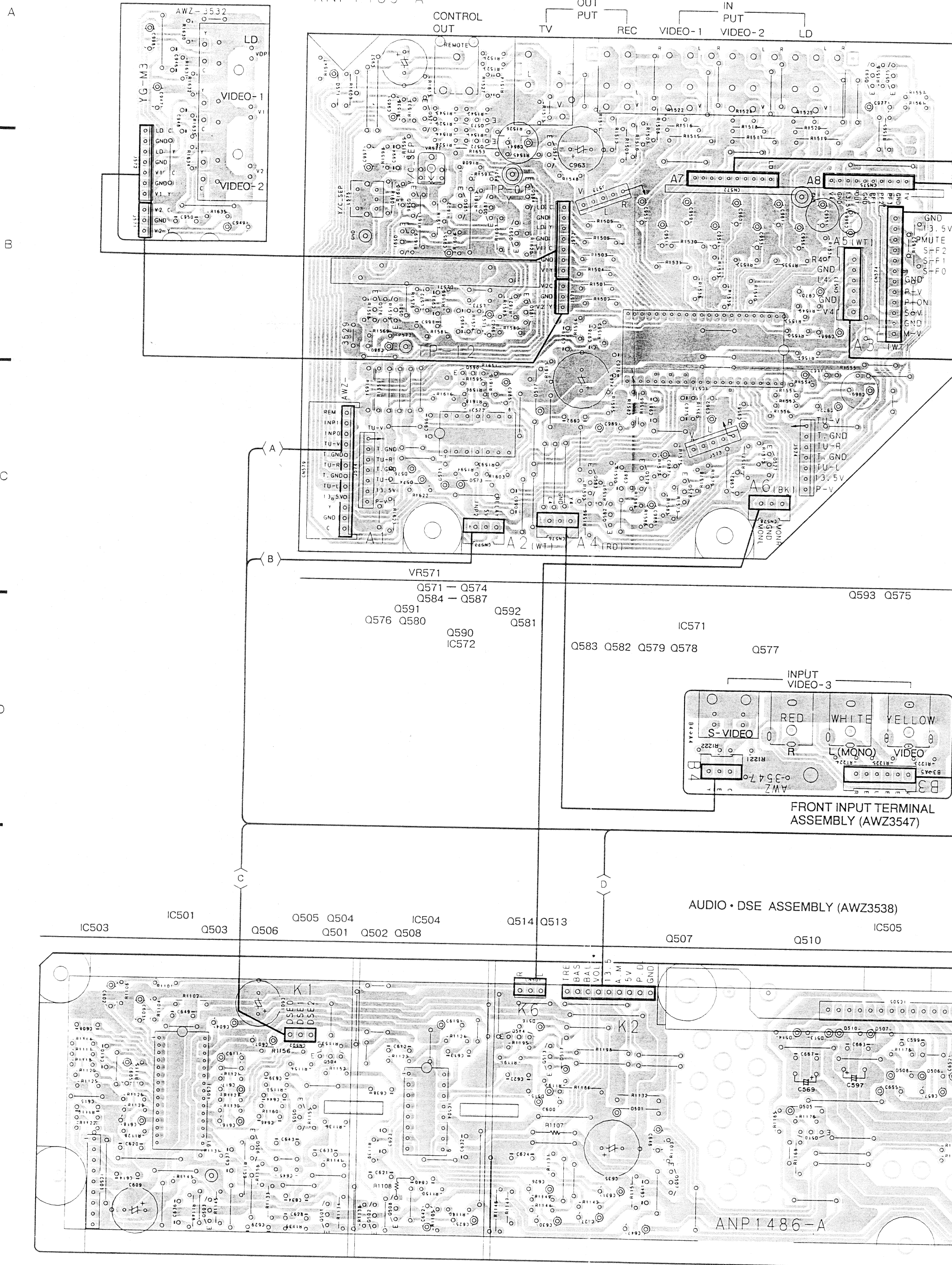
7.10 P. C. BOARDS PATTERN

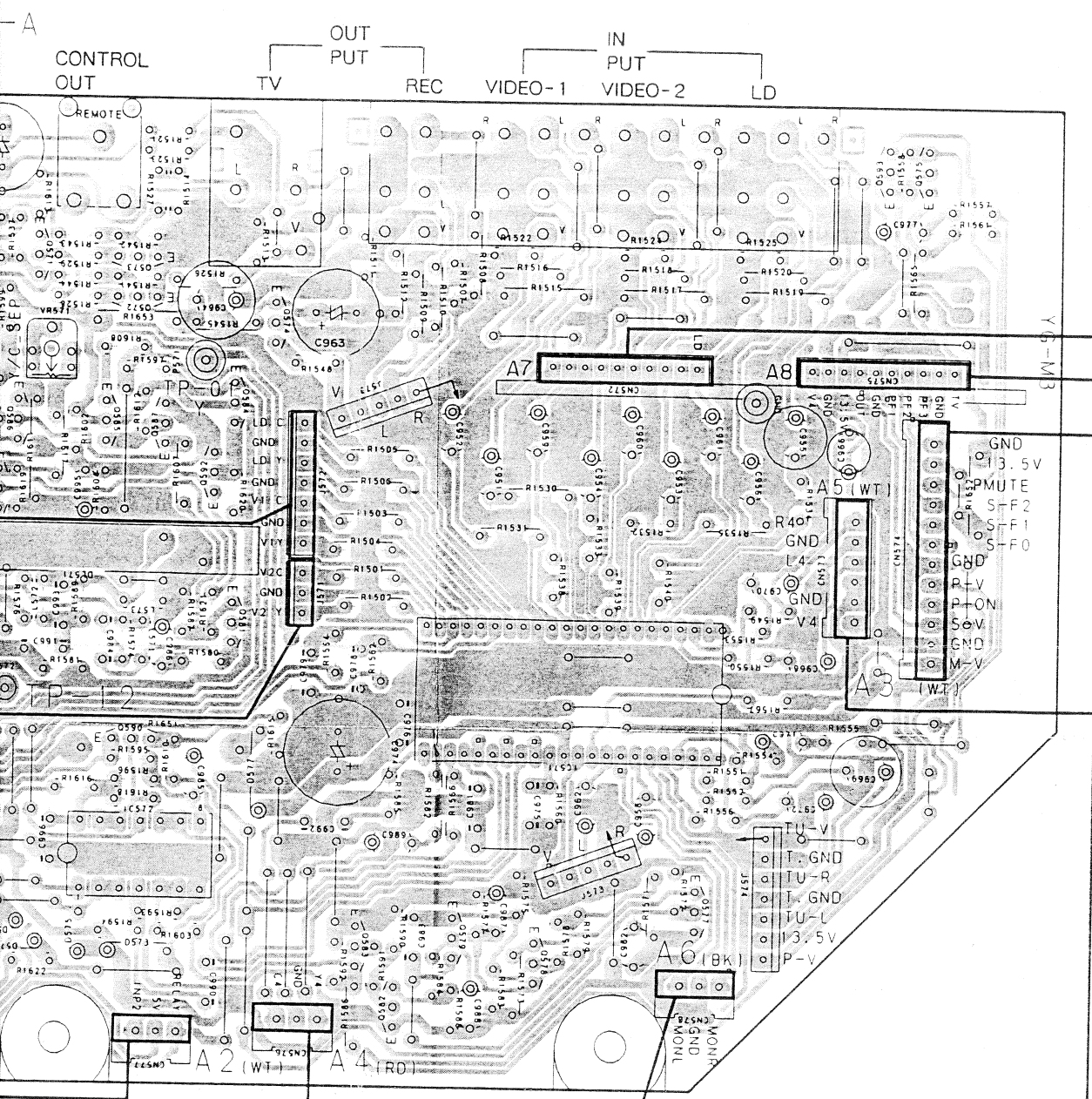
S-3P TERMINAL
ASSEMBLY (AWZ3532)

S-VIDEO
INPUT

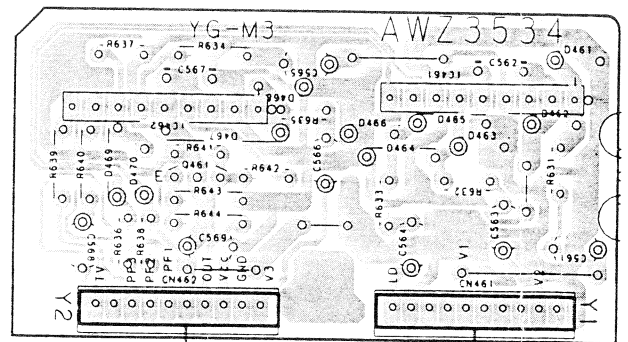
AV I/O-3P • Y/C SEP
ASSEMBLY (AWZ3529)

ANP 1485-A





PINP SELECT
ASSEMBLY (AWZ3534)



PINP SUB
(AWZ3656)

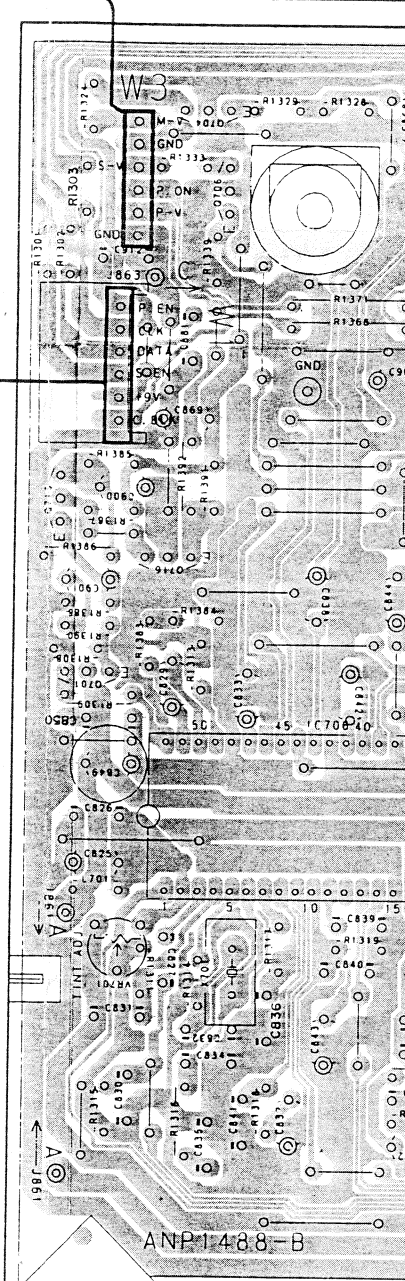


- Q704
- Q705
- Q706
- Q707 Q709
- Q710
- Q712
- IC701
- Q718 Q711

- Q719
- Q715
- Q716
- Q708
- IC703
- IC702
- Q701

- IC706
- IC704

- IC705



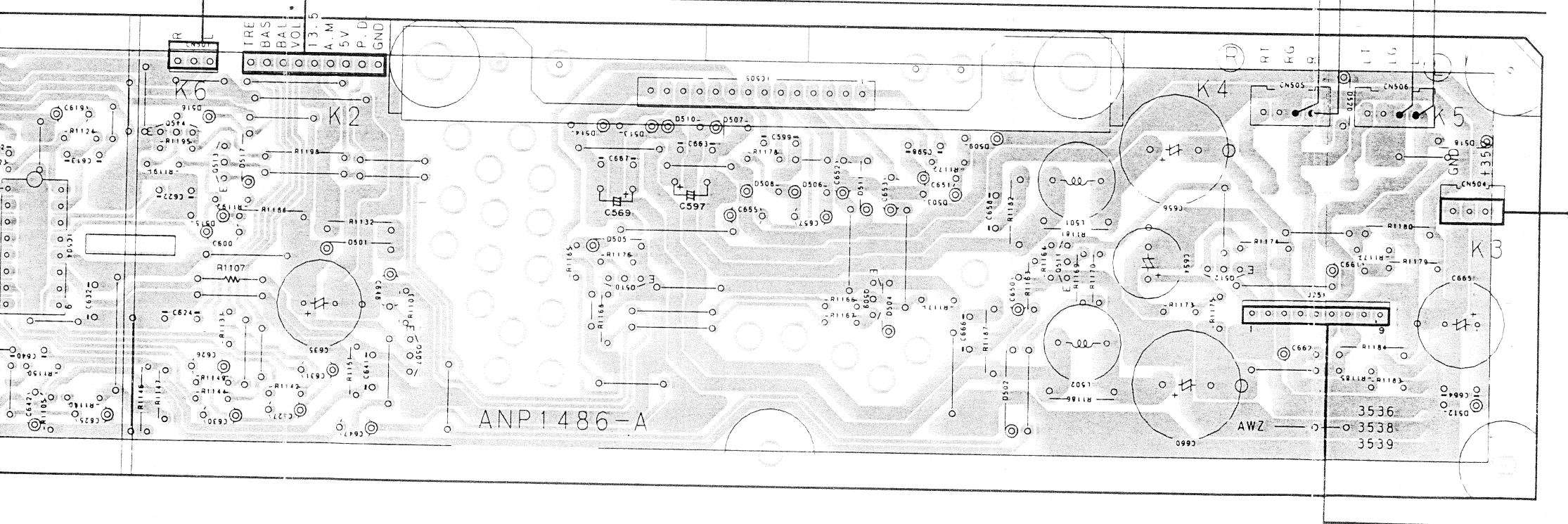
PINP ASSEMBLY (AWZ3655)

AUDIO • DSE ASSEMBLY (AWZ3538)

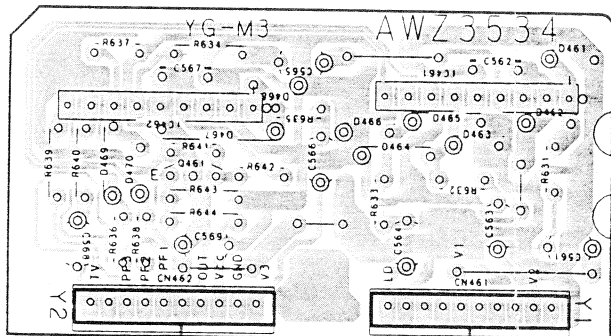
- IC504
- Q514 Q513
- Q507
- Q510
- IC505
- Q509

- Q511
- Q512

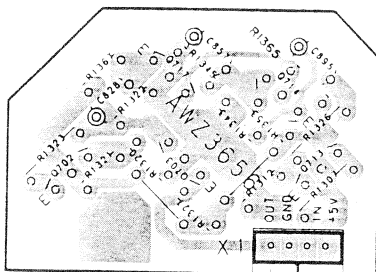
BUILT-IN
SPEAKERS



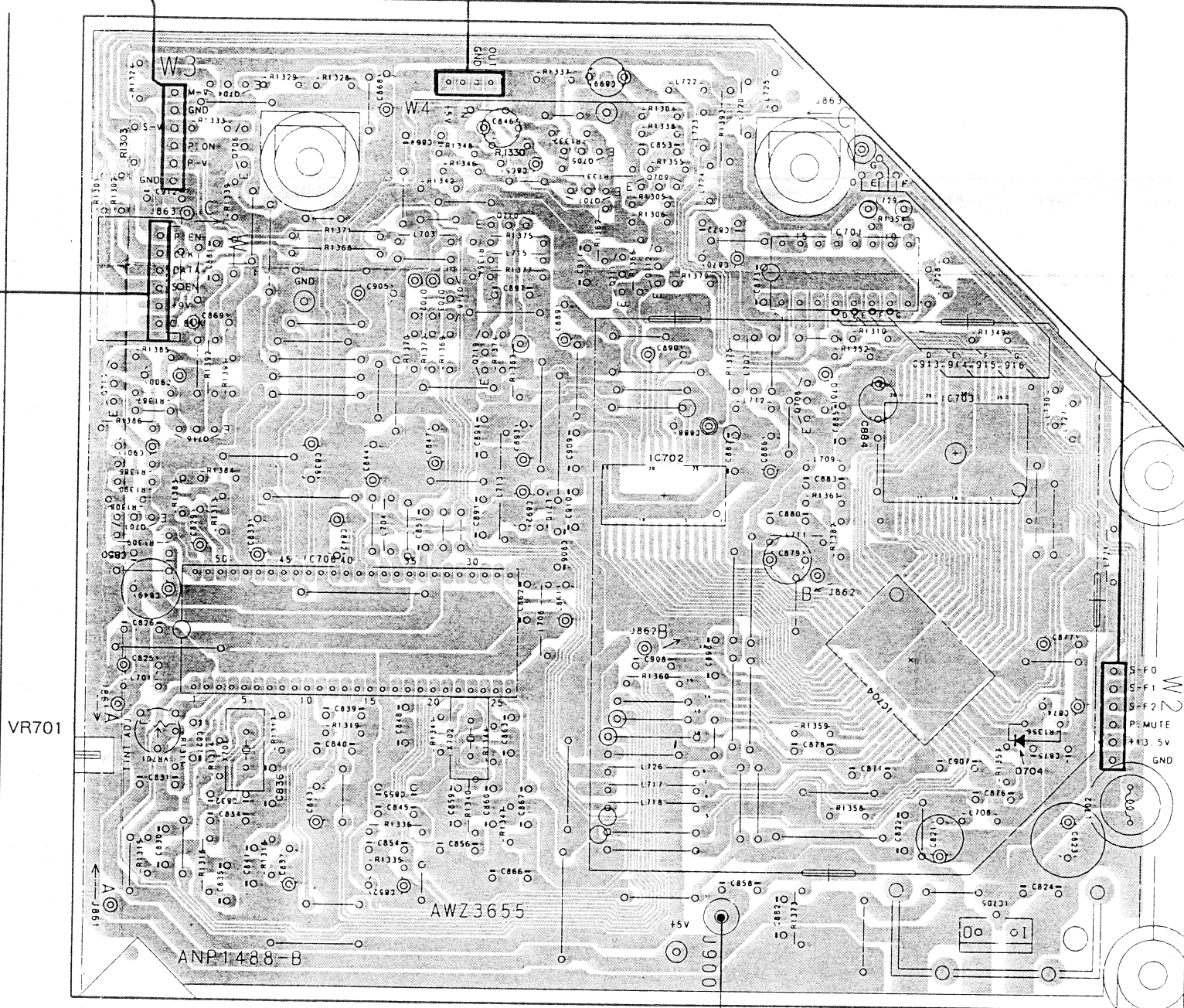
PINP SELECT
ASSEMBLY (AWZ3534)



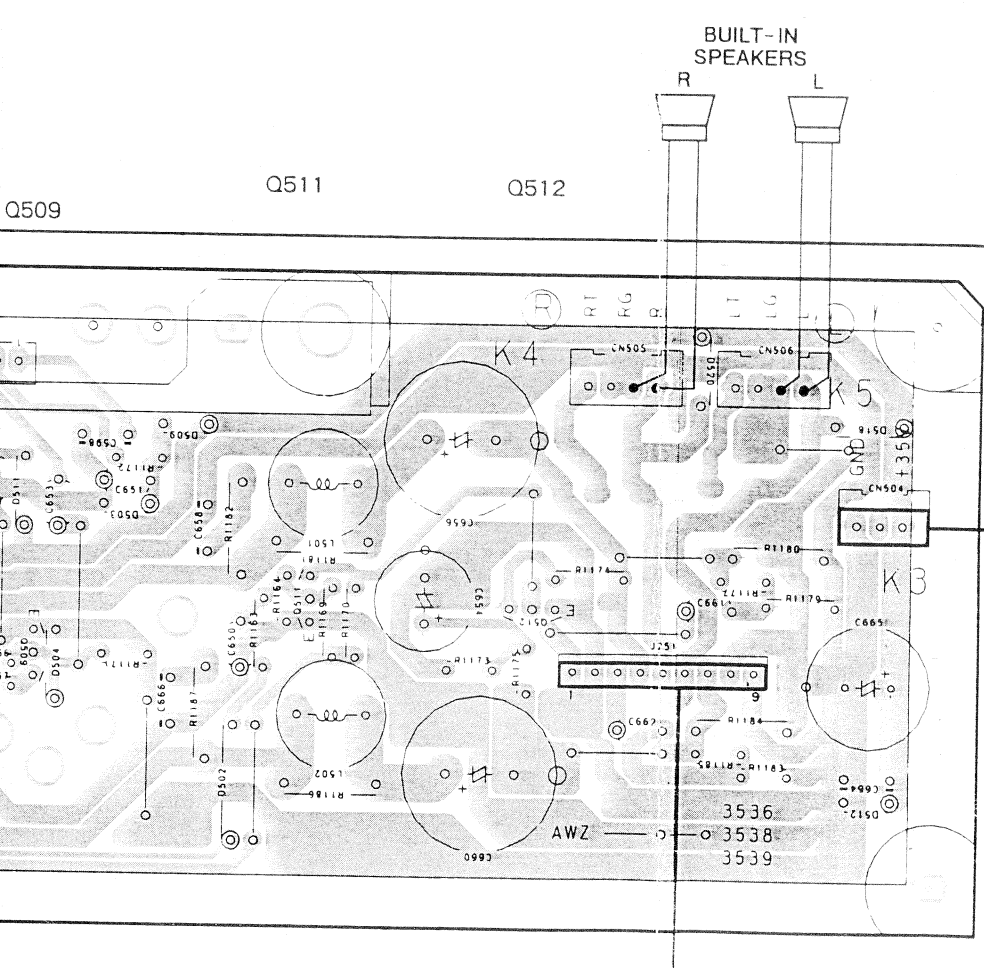
PINP SUB ASSEMBLY
(AWZ3656)



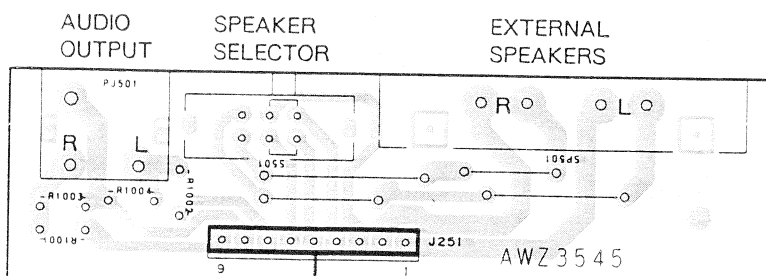
- Q704
- Q705
- Q706
- Q707 Q709
- Q710
- Q712
- IC701
- Q718 Q711
- Q719
- Q715
- Q708
- Q716
- IC703
- IC702
- Q701
- IC706
- IC704
- IC705



PINP ASSEMBLY (AWZ3655)



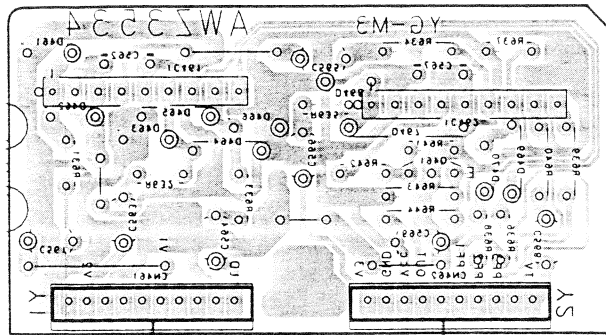
POWER
SUPPLY
ASSEMBLY
E3



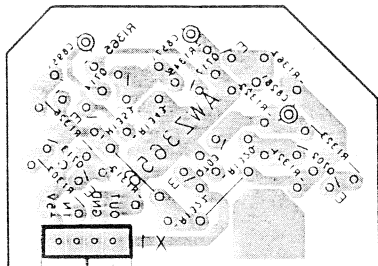
SP TERMINAL
ASSEMBLY (AWZ3545)

1

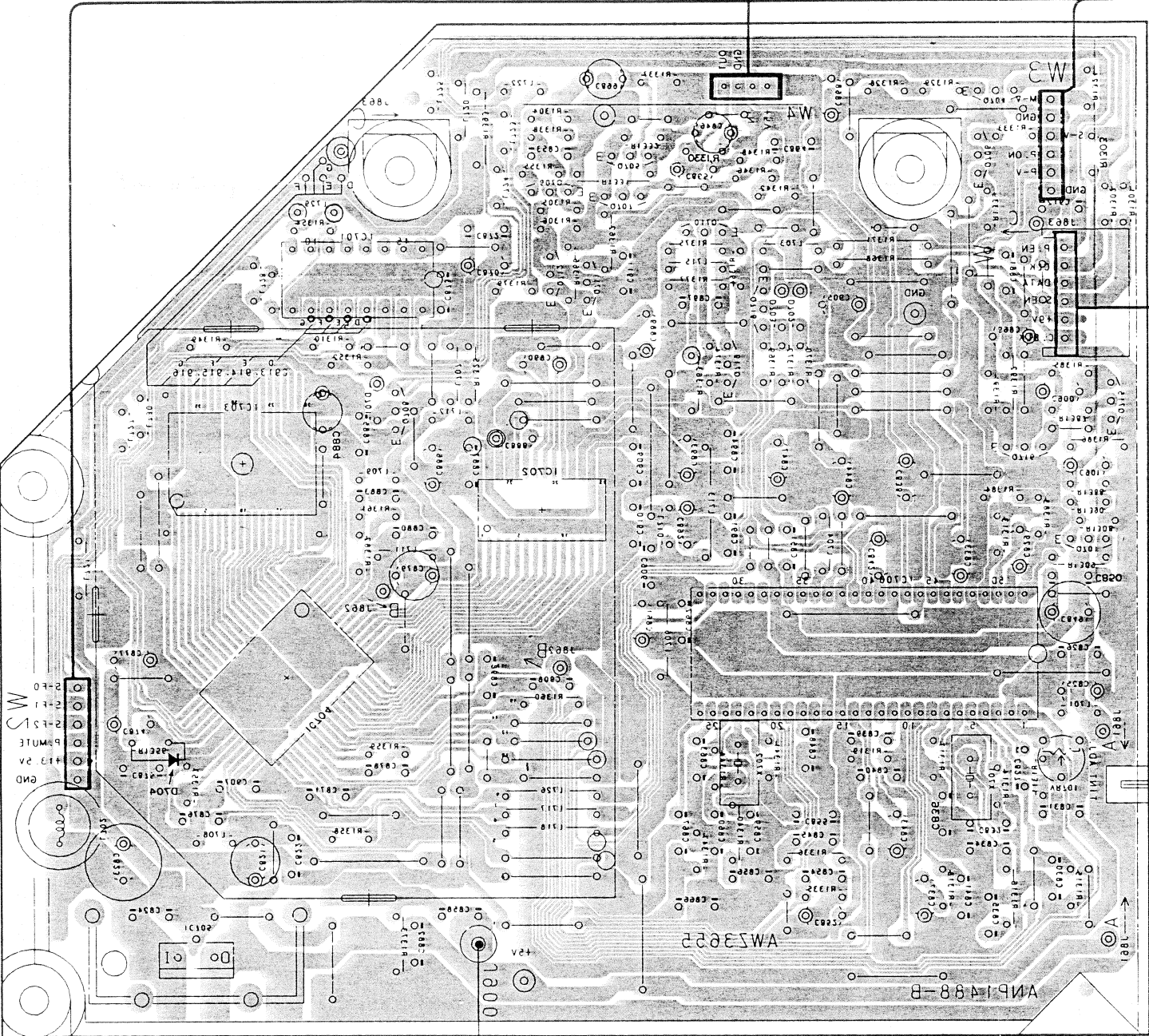
ASSEMBLY (AW3234)



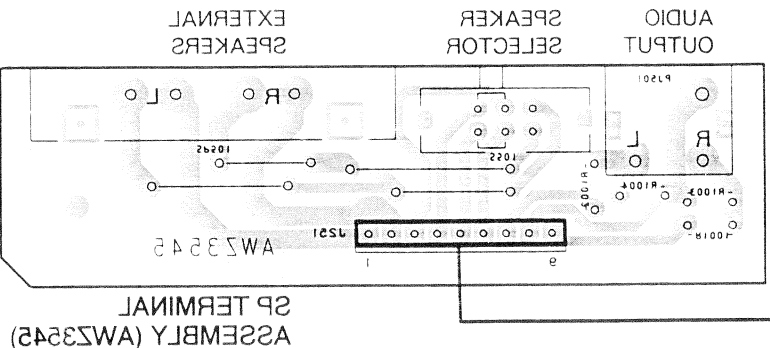
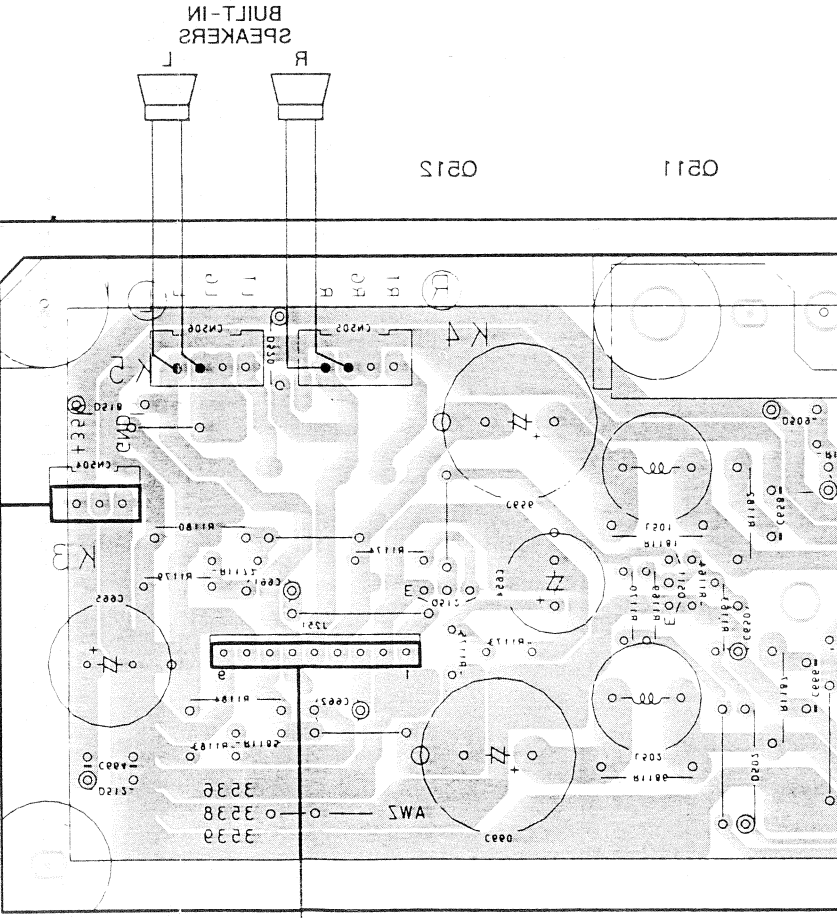
PIP SUB ASSEMBLY (AW3234)



- Q704
- Q705
- Q706
- Q707
- Q710
- Q715
- Q718
- Q719
- Q712
- Q716
- Q708
- IC703
- IC705
- Q701
- IC706
- IC704
- IC702

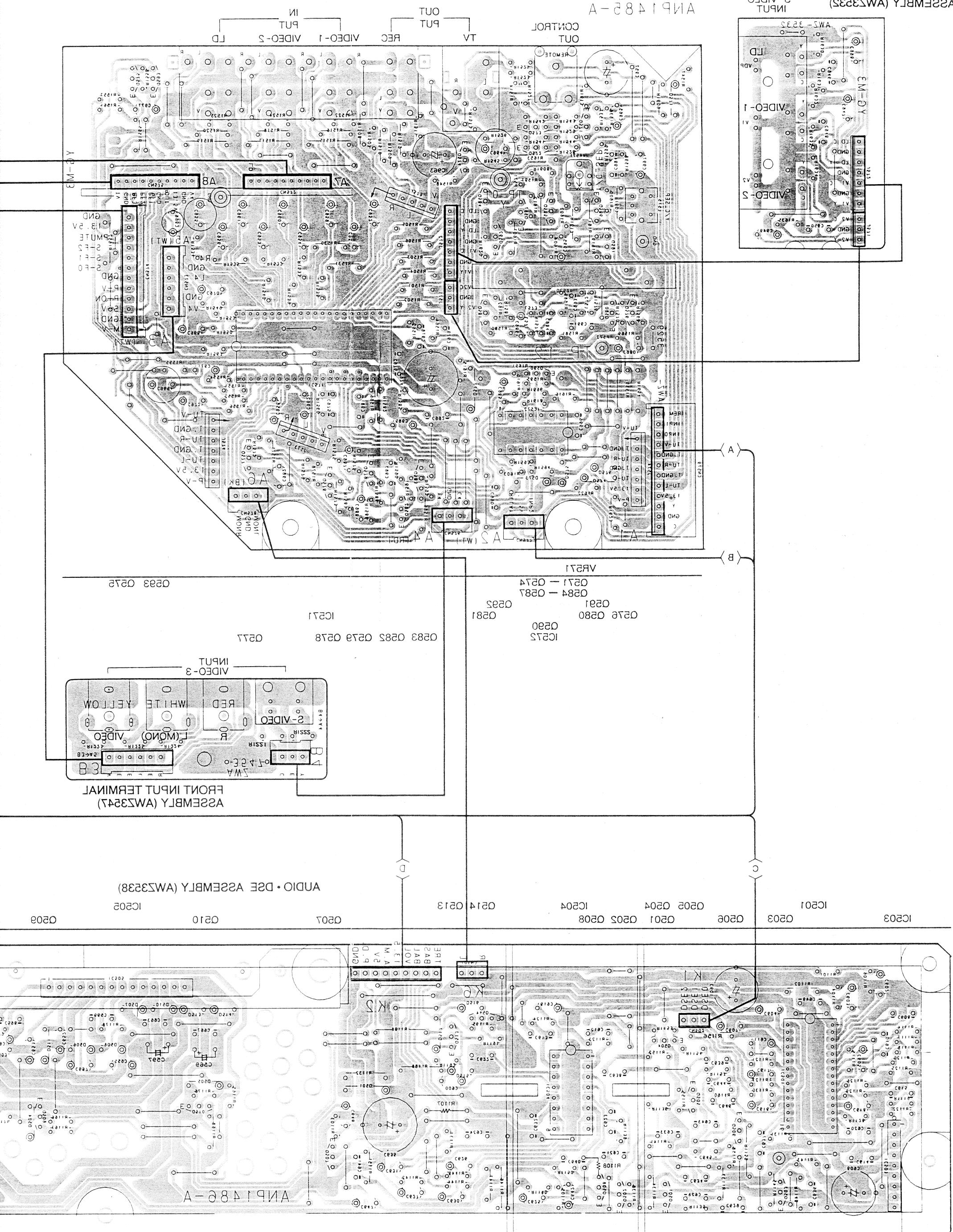


PIP ASSEMBLY (AW3232)

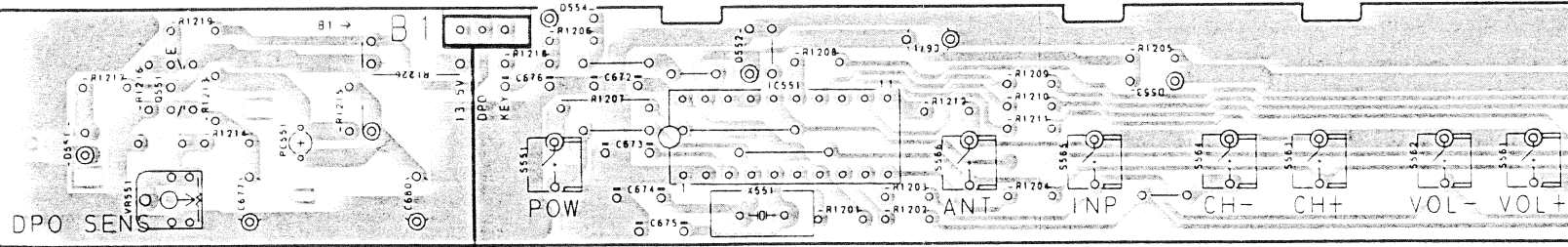


SP TERMINAL ASSEMBLY (AW3242)

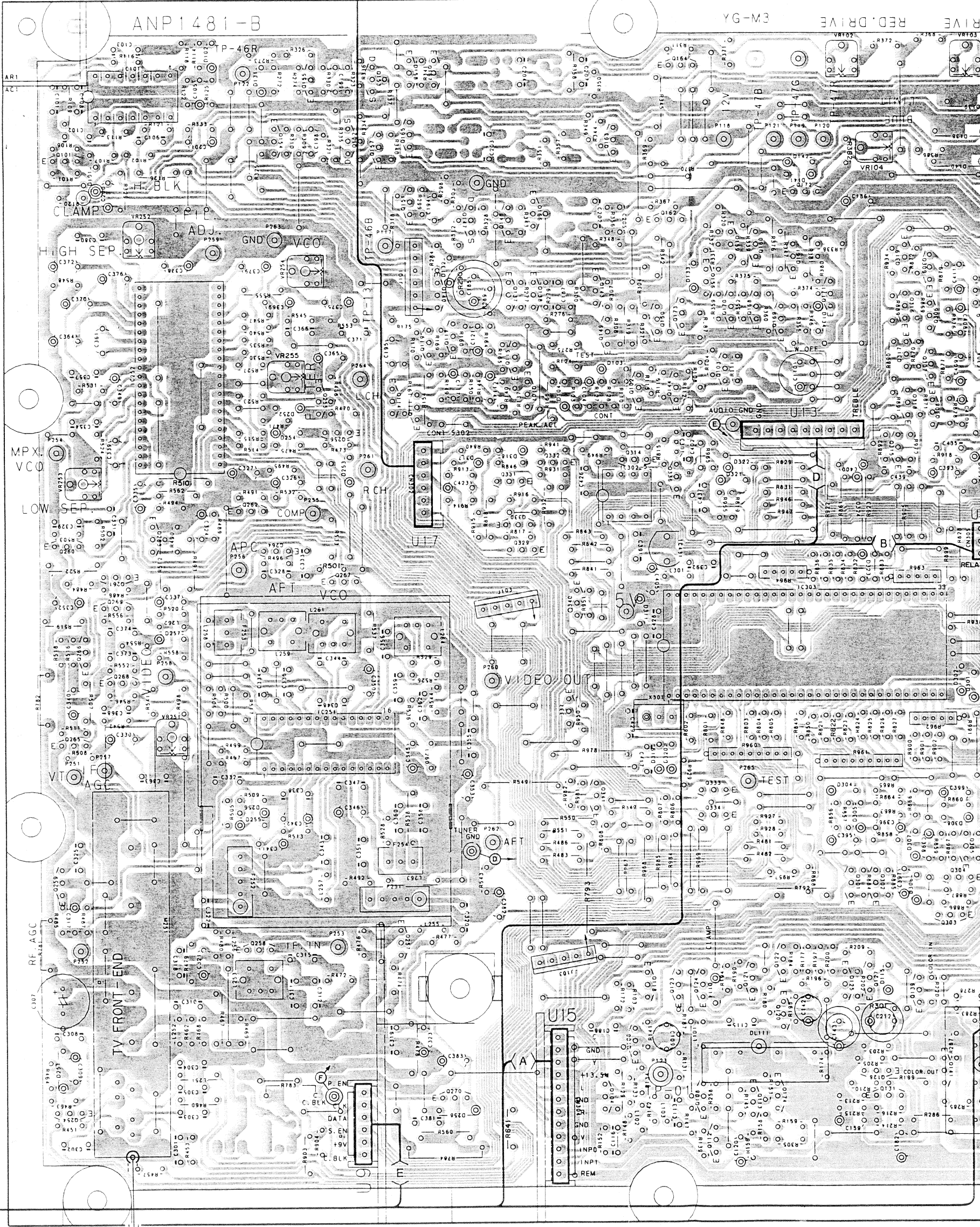
Power 3319



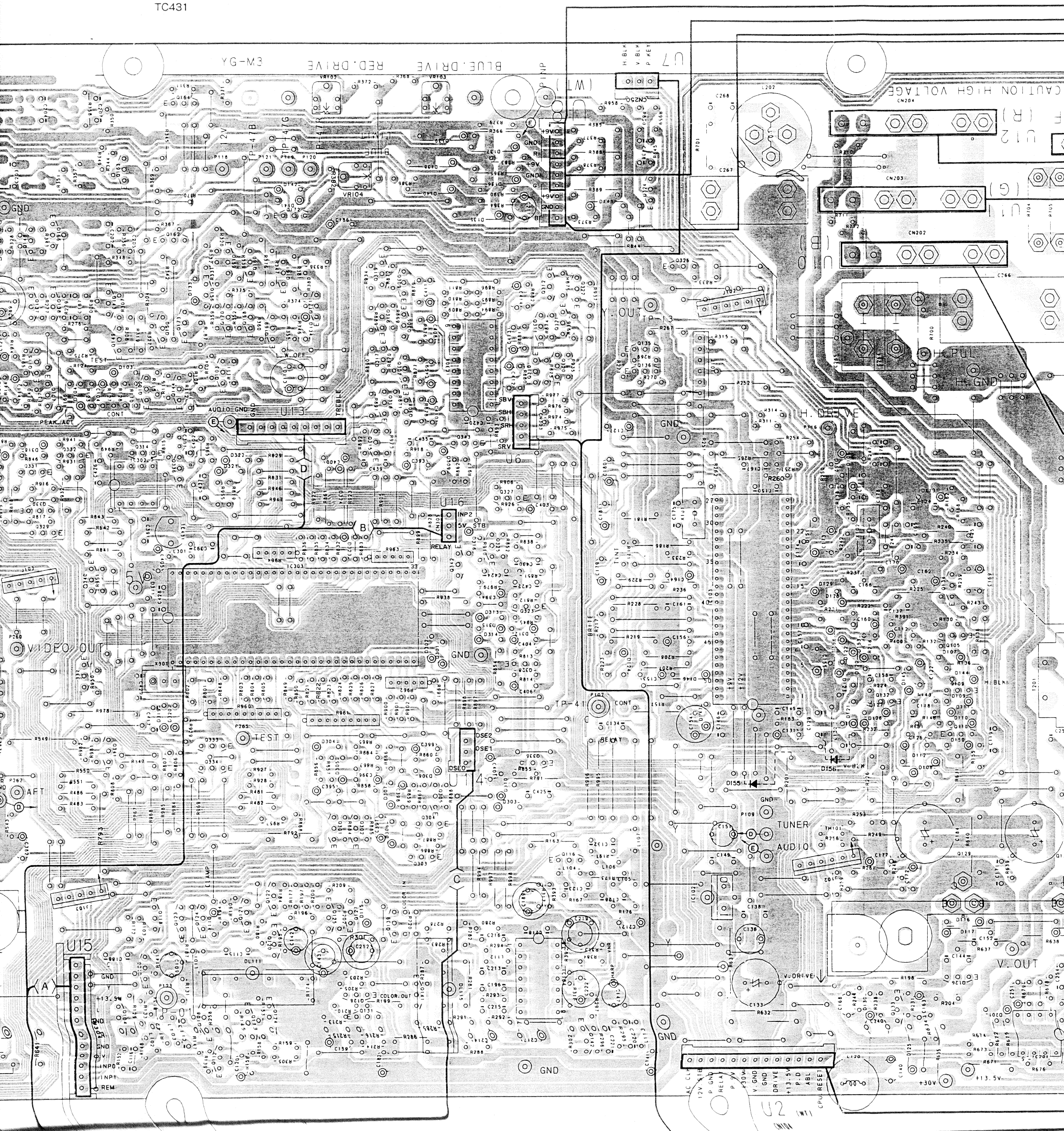
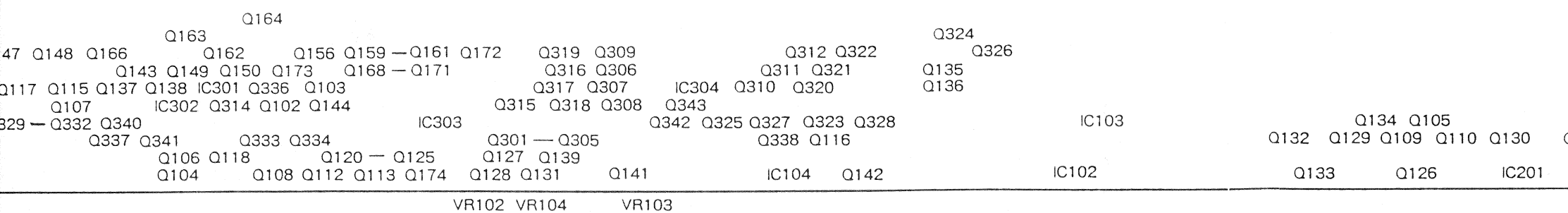
FRONT
CONTROL
ASSEMBLY
(AWZ3540)



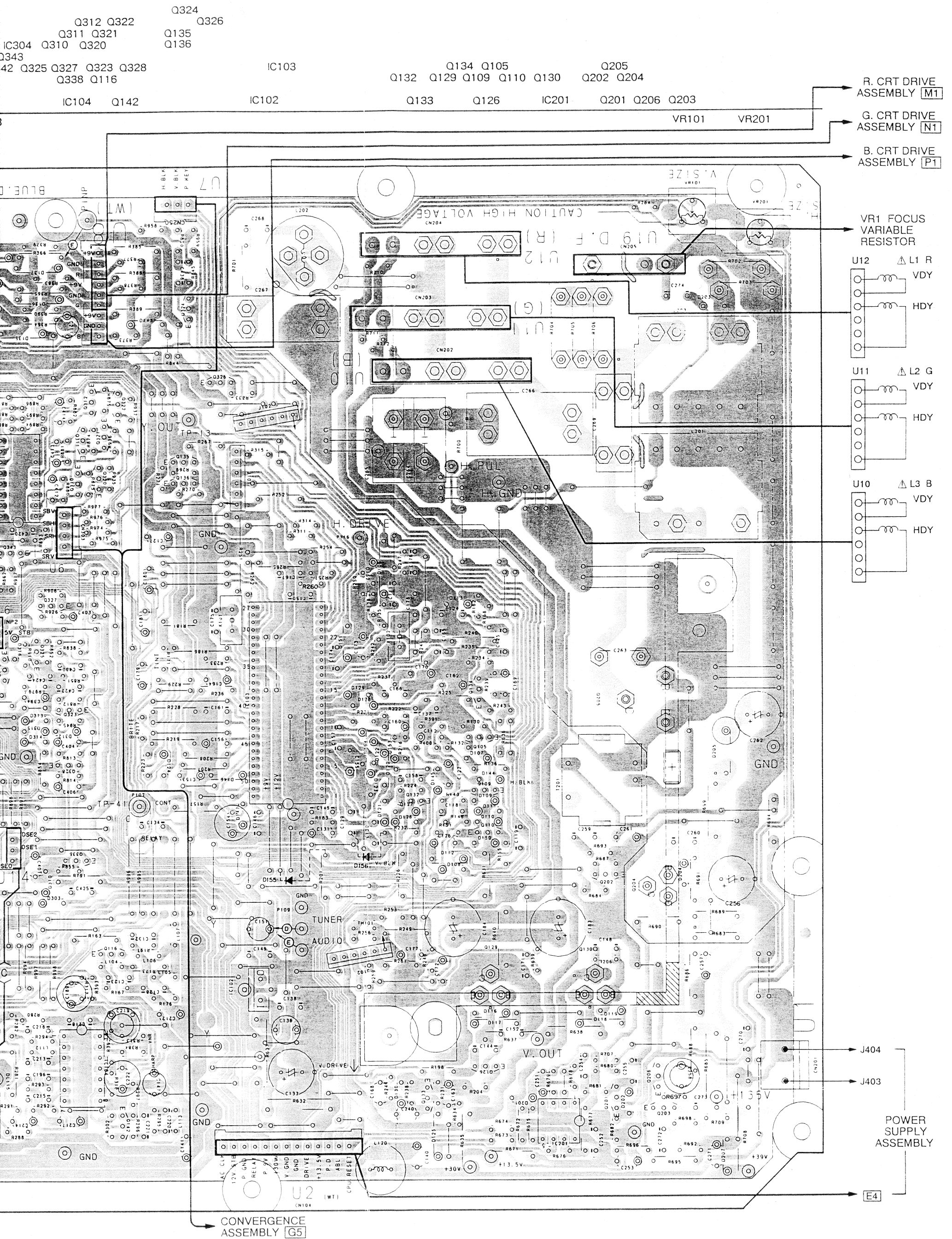
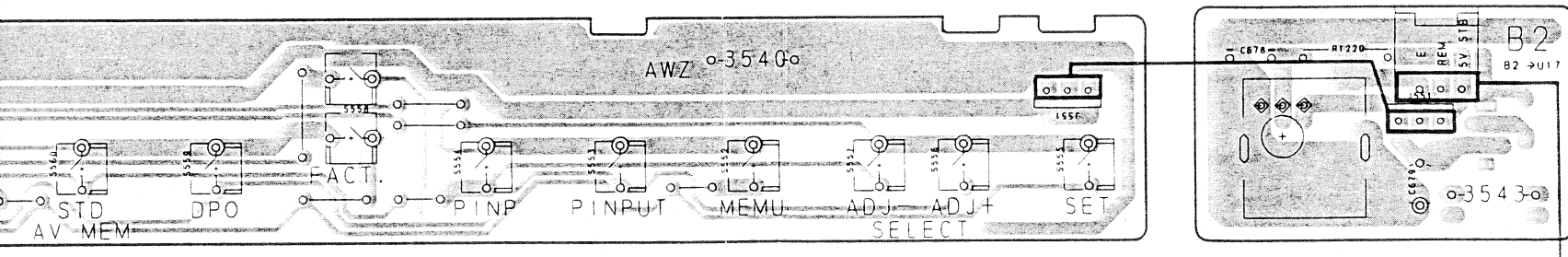
- Q101 IC101 Q152 — Q155 Q158 Q167 Q164
Q151 Q147 Q148 Q166 Q163 Q156 Q159 — Q161 Q172 Q319 Q309
Q143 Q149 Q150 Q173 Q168 — Q171 Q316 Q306
Q119 Q140 Q117 Q115 Q137 Q138 IC301 Q336 Q103 Q317 Q307
Q114 Q111 Q107 IC302 Q314 Q102 Q144 Q315 Q318 Q308
Q266 Q268 Q269 Q260 — Q264 Q255 Q256 Q267
Q259 Q265 IC251 Q329 — Q332 Q340 IC303 Q301 — Q305
Q254 Q258 Q257 Q337 Q341 Q333 Q334 Q120 — Q125 Q127 Q139
Q270 Q106 Q118 Q104 Q108 Q112 Q113 Q174 Q128 Q131 Q141
- VR252 VR253 VR251 VR254 VR255 TC431 VR102 VR104 VR105

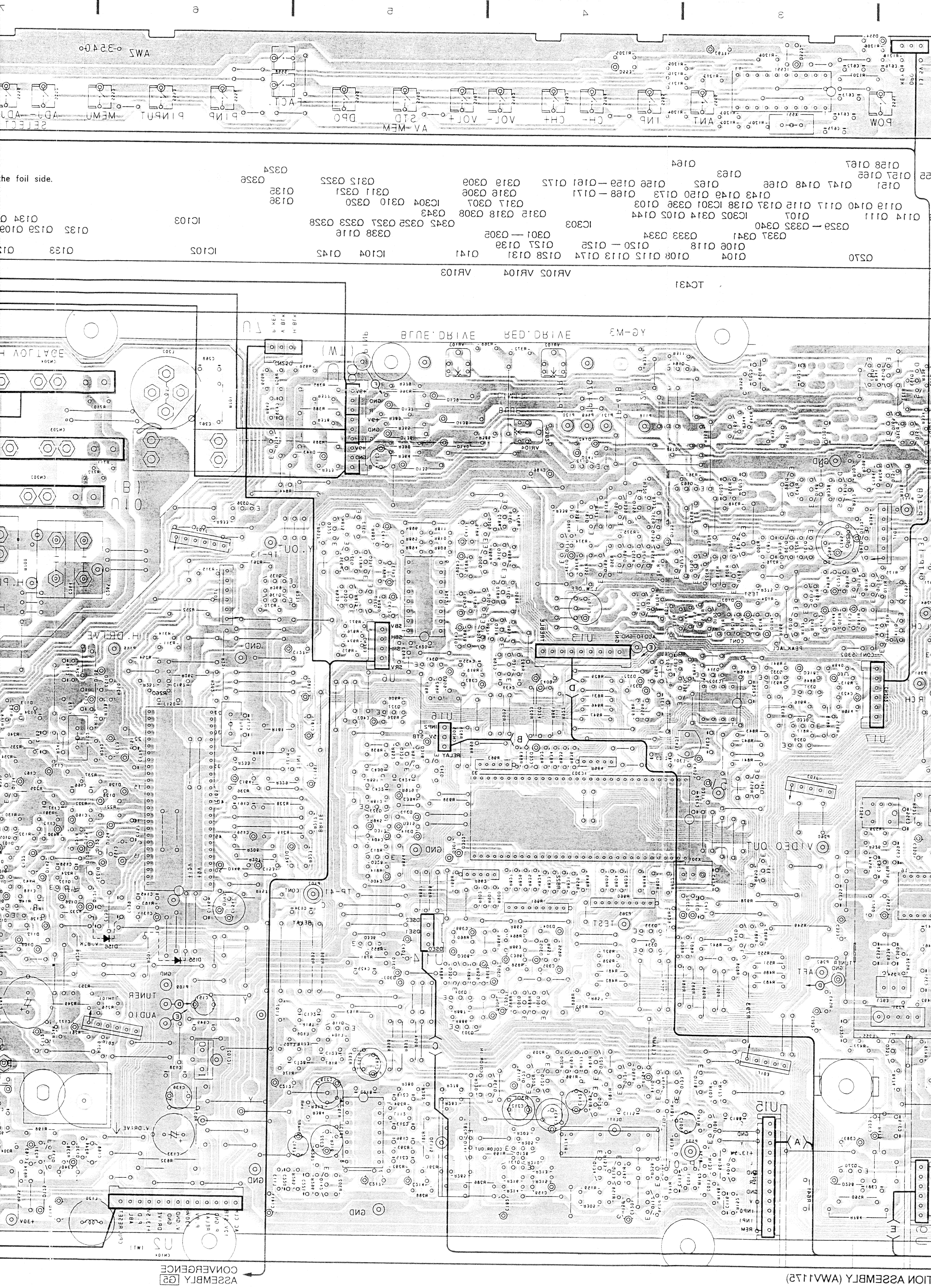


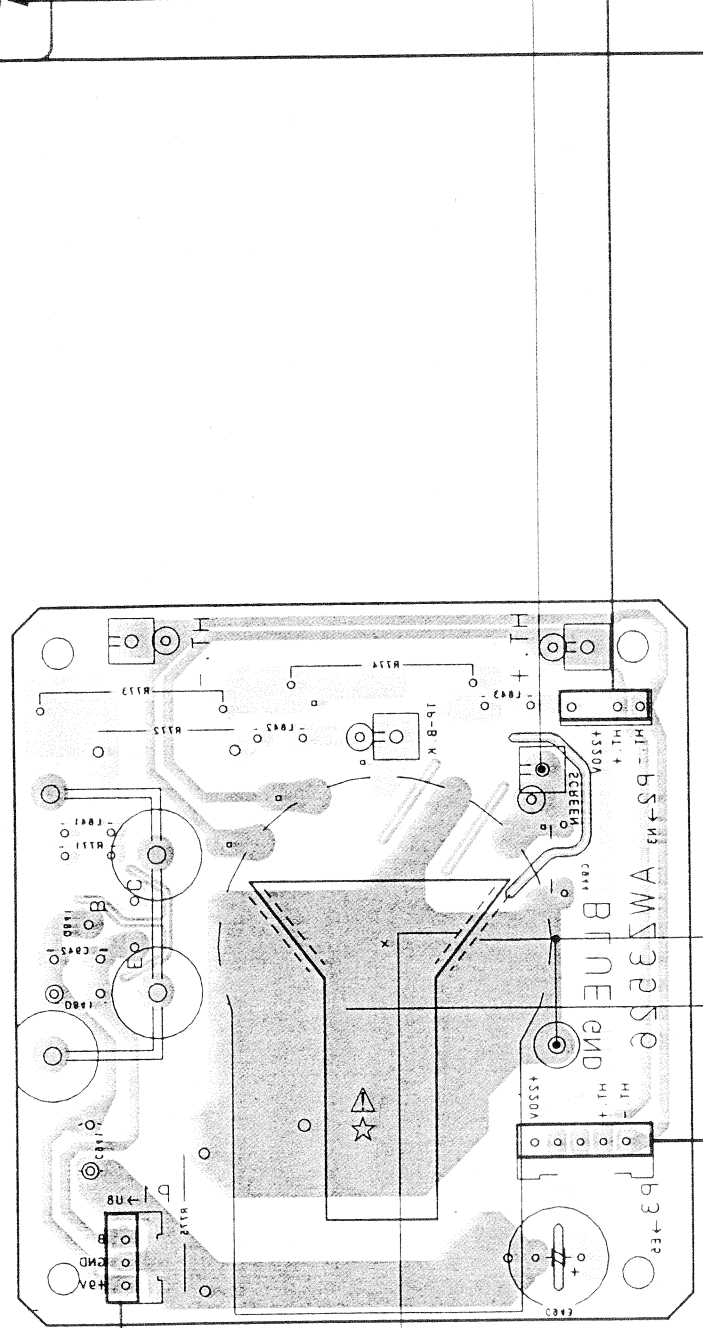
VIDEO • DEFLECTION ASSEMBLY (AWV1175)



CONVERGENCE
ASSEMBLY







R. CRT DRIVE ASSEMBLY (AW53524)

G. CRT DRIVE ASSEMBLY (AW3252)

VR325
VR321

ASSEMBLY [U8] VIDEO • DEFLECTION
(A) W5325 DRIVE B. CRT

[illegible]

replaced. always replace with specified parts.
mounting tabs which relate with X-ray radiation.
position point. (excluding the charged section)
ion (Power supply primary side circuit).

RESISTOR
VARIABLE
FOCUS
VR1

ASSEMBLY U19
VIDEO • DEFLECTION
VIDEO •

ASSEMBLY U1
VIDEO • DEFLECTION

ASSEMBLY K3
AUDIO • DSE

R. CRT DRIVE ASSEMBLY (AW3254)

RED
AW3254

ANP1485-B KU KC 2 ONLY

VR321
VR325

O410

O411
O324
O326
O328
O327
O413
O328
O415
O326

IC321
O326

O401
O321

IC401

O407

IC405
O402

VR401
O408

EM-DY

FOCUS
ANODE

+350V

HT+

HT-

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

HT

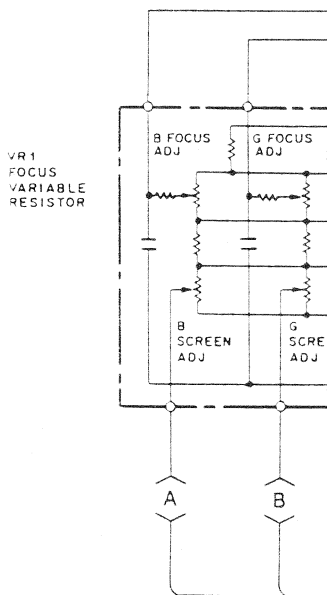
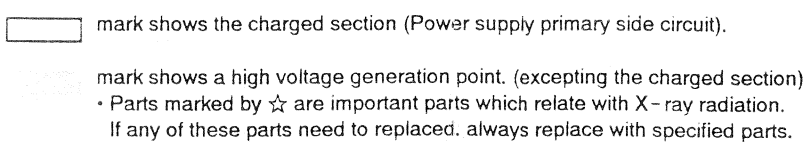
HT

HT

HT

HT

F

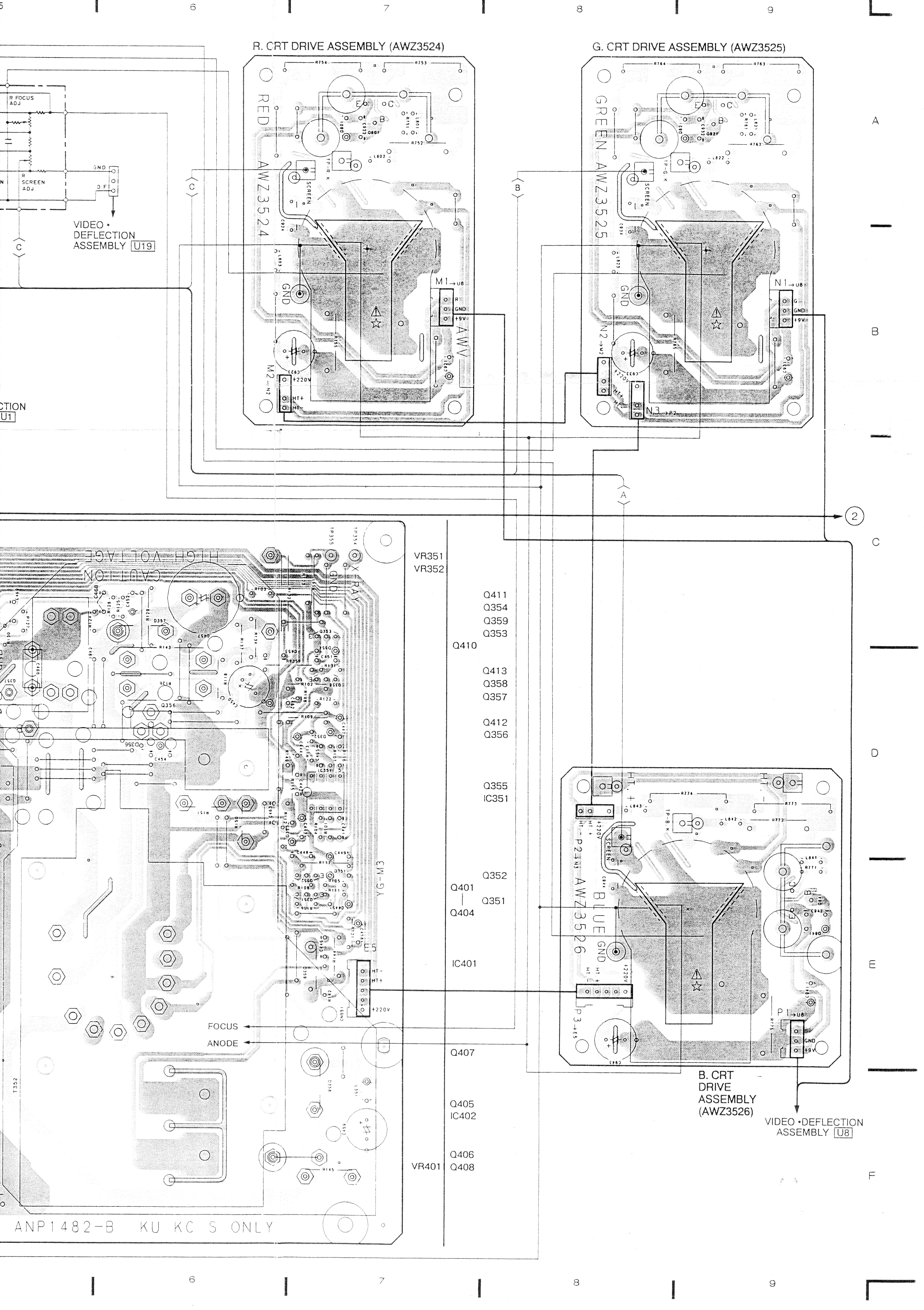


VIDEO • DEFLECTOR
ASSEMBLY

AUDIO • DSE
ASSEMBLY K3

-FOR CONTINUED PROTECTION AGAINST FIRE]  HAZARD. REPLACEMENT FUSES SHOULD BE OF THE SAME TYPE AND RATINGS ONLY

☆ POWER SUPPLY ASSEMBLY (AWV1203)



R. CRT DRIVE ASSEMBLY (AWZ3524)

G. CRT DRIVE ASSEMBLY (AWZ3525)

B. CRT DRIVE ASSEMBLY (AWZ3526)

VIDEO DEFLECTION ASSEMBLY U19

VIDEO DEFLECTION ASSEMBLY U8

VR351
VR352

Q411
Q354
Q359
Q353

Q410

Q413
Q358
Q357

Q412
Q356

Q355
IC351

Q352
Q401
Q404

IC401

Q407

Q405
IC402

Q406
Q408

VR401

ANP1482-B KU KC S ONLY

1

2

3

4

5

6

②

CONVERGENCE ASSEMBLY (AWZ3523)

A

B

C

D

CONVERGENCE YOKE

△ L1 R △ L2 G △ L3 B

RED GREEN BLUE

PARABOLA

TOP ADJ

H

GV

RH

RV

BH

ANP1483-A

AWZ3523

1179-

VIDEO DEFLECTION
ASSEMBLY [U7]VIDEO DEFLECTION
ASSEMBLY [U6]

1

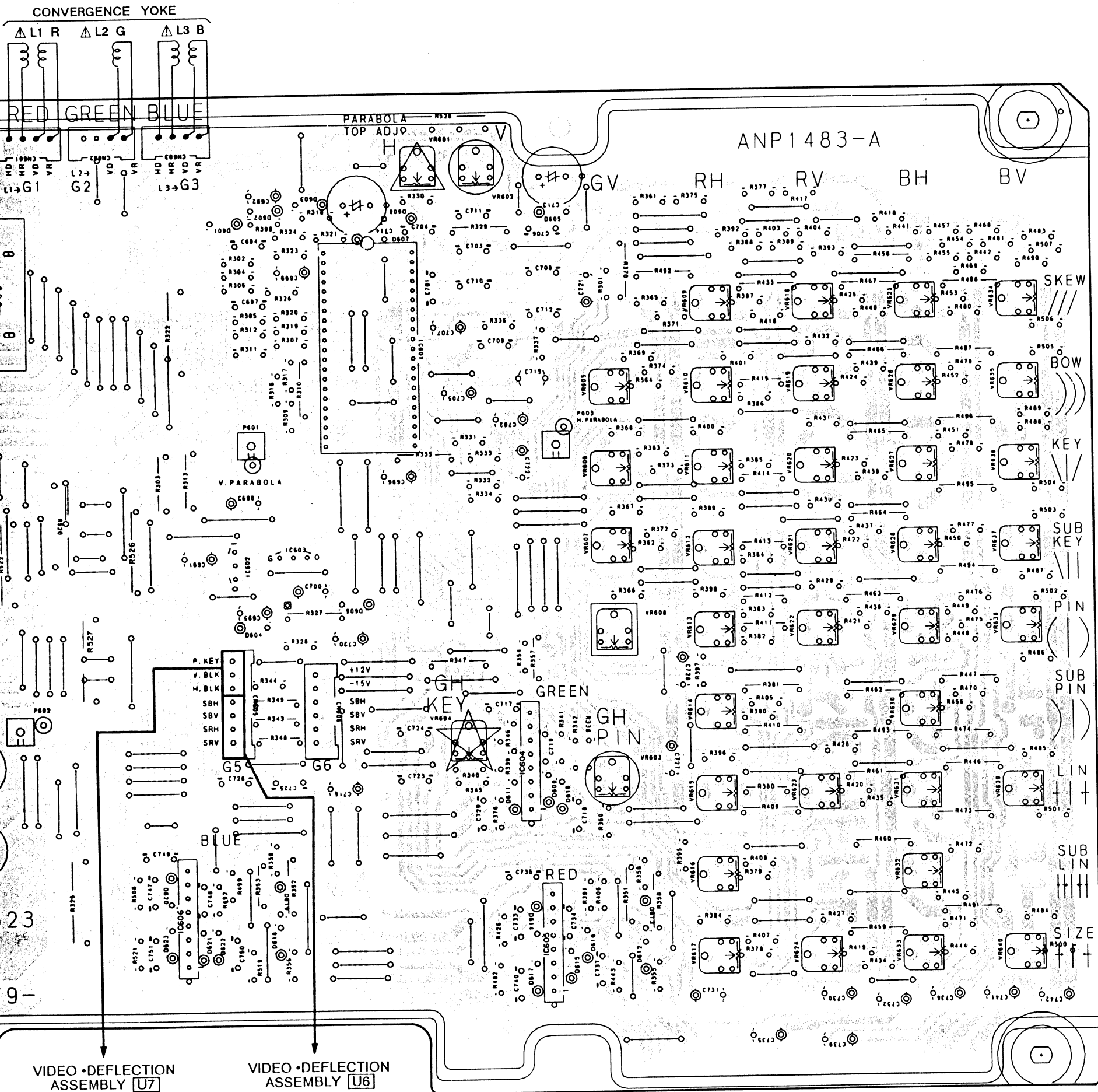
2

3

4

5

6



NOTE

1. This P.C.B. connection diagram is viewed from the parts mounted side.
2. The parts which have been mounted on the board can be replaced with those shown with the corresponding wiring symbols listed in the following Table.

P.C.B. pattern diagram indication	Corresponding part symbol	Part Name
		Transistor
		Radiator type transistor
		Diode
		Resistor
		Capacitor (Polarity)
		Capacitor (Non-polarity)

Others

P.C.B. pattern diagram indication	Part Name
	IC
	Switch
	Relay
	Coil
	Filter
	Variable resistor or Semi-fixed resistor

3. The capacitor terminal marked with ⊙ (double circles) shows negative terminal.
4. The diode terminal marked with ⊙ (double circles) shows cathode side.
5. The transistor terminal to which E is affixed shows the emitter.

VR605
VR608
VR609
VR613
VR618
VR622
VR625
VR629
VR634
VR638
VR614
VR617
VR603
VR623
VR624
VR630
VR633
VR639
VR640

IC601
IC607
IC603
IC602
IC604
IC606
IC605

A

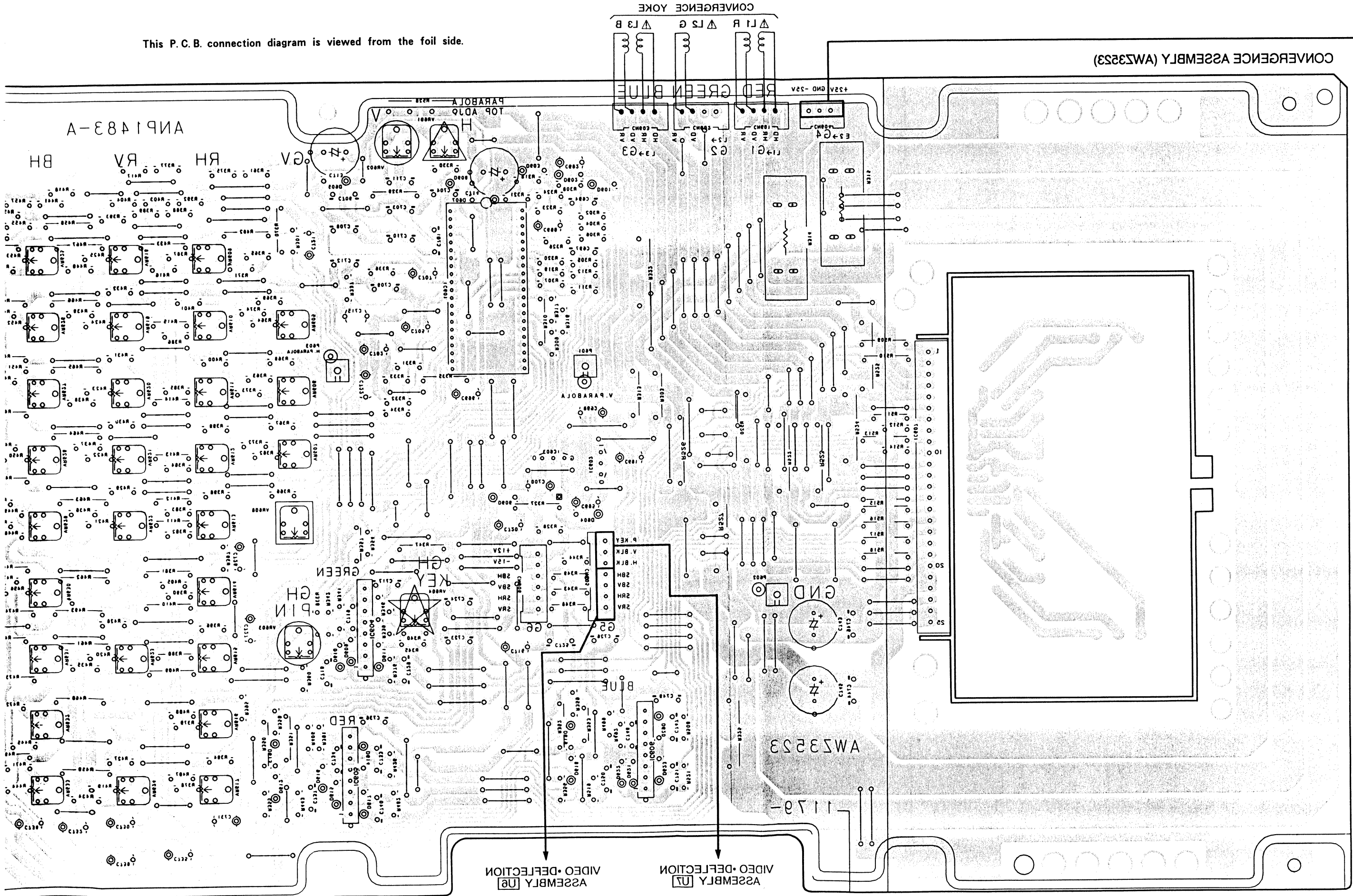
B

C

D

IC002 VR40 VR39 VR33 VR30 VR24 VR23 VR03 VR17 VR14 IC004
IC003 VR38 VR34 VR25 IC005
IC001 VR02 VR03 VR08 VR13 VR18 VR22 VR25

This P.C.B. connection diagram is viewed from the foil side.



A

B

C

D

8. P. C. B's PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "⊙" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.
 Ex.1 When there are 2 effective digits(any digit apart from 0), such as 560 ohm and 47k ohm(tolerance is shown by J=5%, and K=10%).
 $560 \Omega \rightarrow 56 \times 10^1 \rightarrow 561$ RD1/4PS $\begin{bmatrix} 5 & 6 & 1 \end{bmatrix} J$
 $47k \Omega \rightarrow 47 \times 10^3 \rightarrow 473$ RD1/4PS $\begin{bmatrix} 4 & 7 & 3 \end{bmatrix} J$
 $0.5 \Omega \rightarrow 0R5$ RN2H $\begin{bmatrix} 0 & R & 5 \end{bmatrix} K$
 $1 \Omega \rightarrow 010$ RSIP $\begin{bmatrix} 0 & 1 & 0 \end{bmatrix} K$
 Ex.2 When there are 3 effective digits(such as in high precision metal film resistors).
 $5.62k \Omega \rightarrow 562 \times 10^1 \rightarrow 5621$ RN1/4SR $\begin{bmatrix} 5 & 6 & 2 & 1 \end{bmatrix} F$
- Parts marked by ☆ are important parts which relate with X-ray radiation.
 If any of these parts need to be replaced, always replace with specified parts.
- Parts marked by ✕ are important parts which relate with X-ray radiation. If a failure occurs in any of these parts, replace the printed circuit board assembly where the relevant part has already been adjusted as a working component. Do not replace the actual part itself.
 If any part marked by ✕ is replaced, there is danger of being exposed to X-rays.

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
VIDEO-DEFLECTION ASSEMBLY (AWV1175)				Q150, 151	TRANSISTOR	2SC1740S	
SEMICONDUCTORS				Q152, 153	N-FET	2SK246	
TH101	THERMISTOR	TH101-2		Q154, 155	TRANSISTOR	2SC1740S	
IC101	LOGIC IC	TC4011BP		Q156-164	TRANSISTOR	2SA933S	
IC102	REGULATOR IC	NJM7809A		Q165-167	TRANSISTOR	2SC1740S	
IC103	TV LSI	AN5302K		Q168	TRANSISTOR	2SA933S	
IC104	TV IC	PA0030		Q169	TRANSISTOR	2SC1740S	
IC201		RC4558DXP		Q170, 171	TRANSISTOR	2SA933S	
IC251	TV IC	M51365SP		Q172, 173	TRANSISTOR	2SC1740S	
IC252	US MPX DECODER IC	CXA1124AS		Q174	TRANSISTOR	2SA933S	
IC301		M51951BSL		Q201	TRANSISTOR	2SC2715	
IC302		M6M80041P		Q202	TRANSISTOR	2SC3312	
IC303		PDB032B		Q203	TRANSISTOR	2SA1115	
IC304	LOGIC IC	TC4051BP		Q204	TRANSISTOR	2SD1276A	
Q101-104	TRANSISTOR	2SC1740S		Q205	TRANSISTOR	2SD1911	
Q105	TRANSISTOR	2SC1740S		Q206	TRANSISTOR	2SA1115	
Q106-109	TRANSISTOR	2SA933S		Q254	TRANSISTOR	2SC1740S	
Q110, 111	TRANSISTOR	2SC1740S		Q255, 256	TRANSISTOR	RN1201	
Q112, 113	TRANSISTOR	2SA933S		Q257, 258	TRANSISTOR	2SC2716	
Q114-116	TRANSISTOR	2SC1740S		Q259	TRANSISTOR	2SA933S	
Q117-121	TRANSISTOR	2SA933S		Q260	TRANSISTOR	RN1201	
Q122-124	TRANSISTOR	2SC1740S		Q261	TRANSISTOR	2SA933S	
Q125	TRANSISTOR	2SA933S		Q262-264	TRANSISTOR	2SC1740S	
Q126	TRANSISTOR	2SC1845		Q265	TRANSISTOR	2SC2338	
Q127	TRANSISTOR	2SA933S		Q266	TRANSISTOR	2SA933S	
Q128	TRANSISTOR	2SC1740S		Q267	TRANSISTOR	2SC1740S	
Q129	TRANSISTOR	2SB950A		Q268	TRANSISTOR	2SA933S	
Q130	TRANSISTOR	2SD1276A		Q269	TRANSISTOR	2SC1740S	
Q131-133	TRANSISTOR	2SC1740S		Q270	TRANSISTOR	2SD431	
Q134-137	TRANSISTOR	2SA933S		Q301-312	TRANSISTOR	2SA933S	
Q138, 139	TRANSISTOR	2SC1740S		Q314	TRANSISTOR	2SA933S	
Q140	TRANSISTOR	2SA933S		Q315-322	TRANSISTOR	2SC1740S	
Q141-144	TRANSISTOR	2SC1740S		Q323	TRANSISTOR	2SA933S	
Q147	N-FET	2SK246		Q324-332	TRANSISTOR	2SC1740S	
Q148, 149	TRANSISTOR	2SA933S		Q333, 334	TRANSISTOR	RN1201	
				Q336	TRANSISTOR	RN1201	

Mark	No.	Description	Part No.
	Q337	TRANSISTOR	2SC1740S
	Q338	TRANSISTOR	2SD438
	Q340	TRANSISTOR	2SC1740S
	Q341	TRANSISTOR	RN1203
	Q342	TRANSISTOR	RN1201
	Q343	TRANSISTOR	2SC1740S
	D101-104	DIODE	1SS252
	D106-112	DIODE	1SS252
	D113	ZENER DIODE	RD5.1ESB
	D114, 115	DIODE	1SS252
	D116-122	DIODE	1SS252
	D123	ZENER DIODE	RD5.1ESB
	D124	DIODE	1SS252
	D125-134	DIODE	1SS252
	D135-140	DIODE	11E2
	D141-145	DIODE	1SS252
	D146, 147	DIODE	1SS252
	D150, 151	DIODE	1SS252
	D152	ZENER DIODE	RD5.1ESB
	D153-156	DIODE	1SS252
	D201	ZENER DIODE	RD5.1ESB
	D202-204	DIODE	1SS252
	D205	DIODE	11E2
	D207	ZENER DIODE	RD39ESB4
	D251	ZENER DIODE	RD30ESB2
	D252-257	DIODE	1SS252
	D258	ZENER DIODE	RD5.6ESB2
	D301	ZENER DIODE	RD15ESB2
	D302	ZENER DIODE	RD9.1ESB2
	D303	ZENER DIODE	RD5.1ESB2
	D304-310	DIODE	1SS252
	D311	ZENER DIODE	RD6.8ESB2
	D312-324	DIODE	1SS252

COILS, FILTERS AND TRANSFORMER

	L101	AXIAL INDUCTOR	LAU150K
	L102	AXIAL INDUCTOR	LAU100K
	L103	AXIAL INDUCTOR	LAU4R7K
	L104	AXIAL INDUCTOR	LAU680K
	L105	AXIAL INDUCTOR	LAU3R9K
	L106	AXIAL INDUCTOR	LAU1R8M
	L107	AXIAL INDUCTOR	LAU3R9K
	L112	AXIAL INDUCTOR	LAU680K
	L113	AXIAL INDUCTOR	LAU1R8M
	L120	COIL (1000 μ H)	ATH1046
	L201	COIL (7 μ H)	ATL1053
	L202	COIL	ATL1081
	L203	COIL (7 μ H)	ATL1082
	L251	AXIAL INDUCTOR	LAU2R2M
	L252	AXIAL INDUCTOR	LAU2R7M
	L253	COIL	ATC-226
	L255-257	AXIAL INDUCTOR	LAU1R2M
	L258	AXIAL INDUCTOR	LAU120K
	L259	COIL	ATC-226
	L260	AXIAL INDUCTOR	LAU2R2M

Mark	No.	Description	Part No.
	L261	COIL	ATC-249
	L262, 263	AXIAL INDUCTOR	LAU2R2M
	L264	FM DETECTION COIL	ATE-067
	L301	AXIAL INDUCTOR	LAU150K
	F251	SAW FILTER	ATF1046
	F252	SAW FILTER	ATF1093
	F253	CERAMIC TRAP	ATF-114
	F254	CERAMIC FILTER	ATF-166
	T201	H. DRIVE TRANSFORMER	ATK1045

CAPACITORS

	TC431	CERAMIC TRIMMER	ACM-020
	C101	CERAMIC CAPACITOR	CCDCH820J50
	C102	MYLOR FILM CAPACITOR	CQMA681K50
	C103	CERAMIC CAPACITOR	CCCCH151J50
	C104	ELECTR. CAPACITOR	CEAS100M50
	C105	ELECTR. CAPACITOR	CEAS470M16
	C106	CERAMIC CAPACITOR	CCCCH151J50
	C108	CERAMIC CAPACITOR	CKDYF473Z50
	C109	ELECTR. CAPACITOR	CEANP010M50
	C110	ELECTR. CAPACITOR	CEAS331M16
	C111	CERAMIC CAPACITOR	CCDCH390J50
	C112	ELECTR. CAPACITOR	CEAS47M50
	C113	CERAMIC CAPACITOR	CCDSH470J50
	C114	ELECTR. CAPACITOR	CEAS100M50
	C115	CERAMIC CAPACITOR	CCCSL220J50
	C116	CERAMIC CAPACITOR	CCCSL151J50
	C117	ELECTR. CAPACITOR	CEAS010M50
	C118	MYLOR FILM CAPACITOR	CQMA223J50
	C119	MYLOR FILM CAPACITOR	CQMA103J50
	C120	ELECTR. CAPACITOR	CEAS330M16
	C121	ELECTR. CAPACITOR	CEAS010M50
	C122	ELECTR. CAPACITOR	CEAS221M16
	C123	CERAMIC CAPACITOR	CCCSL121J50
	C124	MYLOR FILM CAPACITOR	CQMA223J50
	C125	MYLOR FILM CAPACITOR	CQMA103J50
	C126, 127	ELECTR. CAPACITOR	CEAS100M50
	C128	CERAMIC CAPACITOR	CKCYB391K50
	C129	MYLOR FILM CAPACITOR	CQMA683J50
	C130	MYLOR FILM CAPACITOR	CQMA182J50
	C131	ELECTR. CAPACITOR	CEAS2R2M50
	C132	CERAMIC CAPACITOR	CKCYB391K50
	C134	CERAMIC CAPACITOR	CKDYF103Z50
	C133	ELECTR. CAPACITOR	CEAS102M16
	C136	ELECTR. CAPACITOR	CEAS101M16
	C137	CERAMIC CAPACITOR	CKDYB222K50
	C138	CERAMIC CAPACITOR	CKDYF473Z50
	C140	ELECTR. CAPACITOR	CEAS101M35
	C141	ELECTR. CAPACITOR	CEAS101M16
	C142, 143	ELECTR. CAPACITOR	CEAS330M16
	C144	CERAMIC CAPACITOR	CKCYB561K50
	C145, 146	CERAMIC CAPACITOR	CKDYF103Z50
	C147	ELECTR. CAPACITOR	CEAS330M16
	C148	CERAMIC CAPACITOR	CCDSL101J50
	C149, 150	CERAMIC CAPACITOR	CKDYF473Z50
	C151	ELECTR. CAPACITOR	CEAS101M10

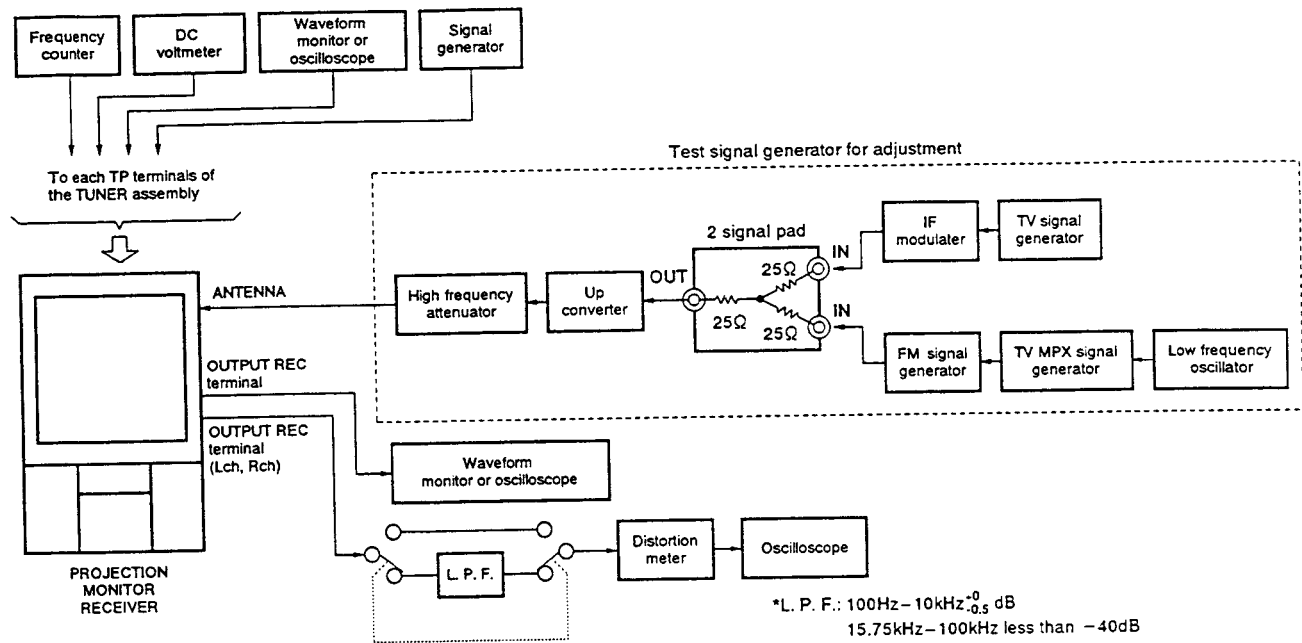
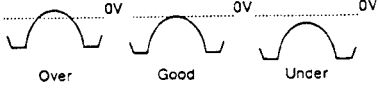
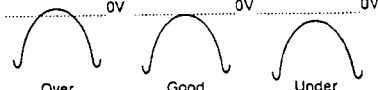


Fig. 9-2 Connection diagram when adjusting the tuner section

9.5 WHEN CONVERGENCE ASSEMBLY IS REPAIRED OR REPLACED

9.5.1 PARABOLA WAVEFORM TOP LEVEL ADJUSTMENT

- Adjustment test point(P) are located in the CONVERGENCE assembly.
- Perform this adjustment only when convergence is shifted.

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	TOP LEVEL OF H PARABOLA WAVEFORM	VR601 (C)	At P603, set the top level of output waveform to $0V \pm 20mV$. 
2	TOP LEVEL OF V PARABOLA WAVEFORM	VR602 (C)	At P601, set the top level of output waveform to $0V \pm 20mV$. 

9.4.4 Tuner Section

- No adjustment required when replacing the assembly.
- Perform the adjustment after the deflection, video and control section adjustments.
- Connection diagram is referred to Fig. 9-2.
- Adjustment points and test points (P) are shown in Fig. 9-11.
- Perform the adjustment set to the TEST mode (Note 1).
- Perform the adjustment by using the channel 9 unless otherwise noted.
- Video and audio input signals are described in the below.

Ⓝ; No signal

Video signal

V ①; fv=EIA color bar, 60dB μ V

V ②; 8 ch, unmodulated, 60dB μ V

Audio signal (MONO)

S ①; $f_A=1$ kHz, 100% MOD, 54dB μ V

S ④; unmodulated, 54dB μ V

Audio signal (STEREO);

dbx noise reduction ON, PRE-EMPHASIS ON

S ②; $f_A=300$ Hz, 30% MOD,

L ch (or R ch) only, 54dB μ V

S ③; $f_A=5$ kHz, 30% MOD,

L ch (or R ch) only, 54dB μ V

Note 1;

How to set the TEST mode.

- Short-circuit P265 (TEST) and GND in the VIDEO•DEFLECTION assembly. (Fig. 9-1)
- Disconnect the AC power cord from the AC outlet, then connect it again.

How to release the TEST mode.

- Release the short-circuit P265 (TEST) and GND in the VIDEO•DEFLECTION assembly.
- Disconnect the AC power cord from the AC outlet, then connect it again.

Video System

Step No.	Adjustment Item	Input Signal		Adjustment Point	Adjustment Procedure
		Video	Audio		
1	Adjacent audio trap	V ②	S ④	L253 (V)	Adjust P253 (IF IN) 47.25MHz component to minimum level.
2	Synchronous detection	V ①	S ①	—	Short P257 (IF AGC) to GND, and measure P256 (APC) voltage.
3				L261 (V)	Open P257 (IF AGC), and adjust the P256 (APC) voltage to the voltage measured in step 2.
4	RF AGC			VR251 (V)	Adjust the P252 (RF AGC) voltage to 6.5V.
5	AFT			L259 (V)	Adjust the P262 (AFT) voltage to 2.5V.

Audio System

Step No.	Adjustment Item	Input Signal		Adjustment Point	Adjustment Procedure
		Video	Audio		
1	Audio detection	V ①	S ①	L264 (V)	Adjust the distortion of the P255 (COMP) to minimum level.
2	dbx filter	㊟	㊟	VR255 (V)	Input the signal of 22.9kHz/245mV to P255 (COMP), and adjust P259 (FIL. ADJ) output to minimum.
3	VCO	㊟	㊟	—	Measure the DC voltage of P254 (MPX VCO) with no input signal.
4		㊟	㊟	VR254 (V)	Input the signal of 15.734kHz/48 mV to P255 (COMP), and adjust the DC voltage of P254 (MPX VCO) to the voltage measured in step 3.
5	Separation	V ①	S ②	VR253 (V)	Adjust the output of the OUTPUT REC terminal on the rear panel to minimum level. (Adjust the R ch level becomes minimum at the Lch input and the L ch level becomes minimum at the R ch input.)
6			S ③	VR252 (V)	
7	Repeat steps 5 and 6 to obtained best separation.				

Step No.	Adjustment Item		Input Signal	Adjustment Point	Adjustment Procedure																
7	ADJUST- MENT OFFSET mode	Color adjustment	Color bar	COLOR (*4)	Adjust screen to optimum condition.																
8		Tint adjustment		TINT (*4)	Adjust screen to optimum condition.																
9	PIONEER Standard setting *1 *a	Contrast adjustment	Free signal	CONTR (*4)	Adjust screen to optimum condition.																
10				—	At the TP - BK of B. CRT DRIVE assembly, confirm that the signal is shaped as shown below.  Shapely waveform  Shapeless waveform																
11	Confirm the focus, size, convergence, white balance and picture quality.																				
12	VNR setting *a		Set to the VNR setting mode of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.) *2																		
			Set the value of numeric telop for each adjustment items as table. *3																		
			<table><tr><th>Item</th><th>Telop</th><th>Item</th><th>Telop</th></tr><tr><td>COLOR</td><td>— 30</td><td>BRITE</td><td>— 30</td></tr><tr><td>TINT</td><td>0</td><td>SHARP</td><td>— 30</td></tr><tr><td>CONTR</td><td>0</td><td>DETAL</td><td>— 50</td></tr></table>			Item	Telop	Item	Telop	COLOR	— 30	BRITE	— 30	TINT	0	SHARP	— 30	CONTR	0	DETAL	— 50
Item	Telop	Item	Telop																		
COLOR	— 30	BRITE	— 30																		
TINT	0	SHARP	— 30																		
CONTR	0	DETAL	— 50																		
13	Blue tailing adjustment		Cross signal	—	Adjust the SG output of the input cross signal to maximum level.																
				—	Maximize contrast by remote control.																
				VR104 (V)	Turn VR104 fully counterclockwise (resulting in blue tailing.).																
					Turn the VR clockwise until there is no blue tailing at the vertical cross line on the screen.																

*1: After this adjustment, confirm the TINT of the PINP sub picture. (TINT ought to be not shifted.) If it's shifted, adjust the TINT of the sub picture as described in 9.8.

*2: Check the convergence position after releasing the FACTORY ADJ mode.

*3: These values are set at the factory and can be changed at the request of the user.

*4: Adjust by remote control.

9.4.3 Control Section

- Perform the adjustment after the deflection and video section adjustments.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	Telop position *1	Signal with synchronizing signal meaning	—	Perform convergence position control adjustment as described in section 9.5.2.
			TC431 (V)	Generate test cross signal, and adjust the cross to center of the screen.
2	DPO BASE setting *a	—	—	Perform DPO BASE setting as described in section 9.16.

Note:

*1: No adjustment required when replacing the assembly.

9.4 WHEN VIDEO•DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED

Note: Adjustment items of marked “*a” should be stored in the IC302 when replacing the IC303 (microcomputer) or IC302 (Non-Volatile Memory) or the VIDEO•DEFLECTION assembly.

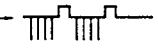
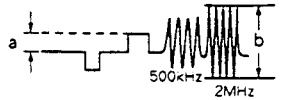
When replacing the IC303 or IC302, adjustment data should first be stored, if possible, and then be reinput afterwards. When data memory in the IC302 was erased and cannot be stored or when you replacing the VIDEO•DEFLECTION assembly, reset as indicated in the table.

9.4.1 Deflection Section

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	Convergence position confirmation	Cross hatch signal	—	Confirm the position of the convergence. If the position is shifted, adjust as described in section 9.5.1.
2	Convergence confirmation			Confirm the convergence. If the convergence is shifted, adjust as described in section 9.5.2.
3	Focus adjustment	Cross hatch signal	Focus VR (VR1)	Optimize the focus of each CRT assembly. (Focus is easier to judge if red and blue are displaced by turning the convergence controls on the remote control as shown in Fig. 9-3. Readjust these controls to their original positions after completing the focus adjustment.)
4	Horizontal size adjustment	Monoscope signal or ordinary broadcasting	VR201 (V)	When the monoscope signal is used, adjust the horizontal to $93.5 \pm 2\%$ (left) and $94.5 \pm 2\%$ (right), and adjust the vertical to $90.0 \pm 3\%$ (upper) and $91.0 \pm 3\%$ (lower). When the ordinary broadcasting is used, adjust so that the screen picture does not lack any part of entire picture field.
5	Vertical size adjustment		VR101 (V)	

9.4.2 Video Section

- As to the FACTORY ADJ mode, refer to the section 9.1.
- Perform this adjustment after the Deflection section adjustment.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	White balance adjustment	Color bar signal without color signal	Screen VR (R),(B) (VR1) VR102(R) Drive VR103(B) VR (V)	Adjust the screen VRs (R) and (B) until grey color can just be seen in the color of dark area. (Do not move the green VR at this stage.) Using the drive VR, adjust the color of bright area to white.
2	ADJUSTMENT OFFSET mode PIONEER Standard setting *1 *a	Set to the ADJUSTMENT OFFSET mode (PIONEER standard setting mode) of FACTORY ADJ mode. (After adjustment is complete, release the normal condition.)		
3		Brightness adjustment	Cross hatch signal	COLOR (*4) Minimize Color by remote control.
4				BRITE (*4) Adjust the cut off level at TP - GK of G. CRT DRIVE assembly to DC190V. (After adjustment, confirm the white balance.) Cut off level (DC190V)  (After this adjustment, adjust color as described in step No. 3).
5		Detail adjustment	Multi burst	DETAL (*4) Adjust the numerical value of telop to 30. *3
6		Sharpness adjustment		SHARP (*4) At TP - 05 (P110), set the rate of b (peak-to-peak value at 2MHz) to a (level from black to white) as follows. a : b = 1 : 1.4 (+3.0dB) 

9.2 WHEN POWER SUPPLY ASSEMBLY IS REPAIRED

Note: VR351 and VR352 are protected by the shield covers so that they can not be adjusted. Do not try to turn these volumes by removing their shield cover. (Otherwise, the sensitivity of the protection circuit against the X-ray and the anode voltage will be affected.)

- Adjustment test points are located in the POWER SUPPLY assembly.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	135V power supply adjustment	Black burst signal	VR401 (S)	Adjust the voltage of both sides of C509 to $135V \pm 1V$.

● Each output voltages check

After performed +135V adjustment, confirm the each voltages as follows.

Measuring Point		Voltage	Measuring Point		Voltage
Connector E4	+12V STB for P.GND	$+12V \pm 4V$	Connector E4	+30V for V.GND	$+33V \pm 5V$
Connector E2	+25V for GND	$+25V \pm 5V$	Connector E4	+9V for GND	$+10V \pm 2V$
Connector E2	-25V for GND	$-25V \pm 5V$	Connector E3	+35V for GND	$+35V \pm 5V$
Connector E4	+13.5V for GND	$+13.5V \pm 0.5V$	Connector E5	H.T.+ for H.T. -	$+6.25V \pm 0.25V$

9.3 WHEN POWER SUPPLY ASSEMBLY IS REPLACED

Note: VR351 and VR352 are protected by the shield covers so that they can not be adjusted. Do not try to turn these volumes by removing their shield cover. (Otherwise, the sensitivity of the protection circuit against the X-ray and the anode voltage will be affected.)

- No adjustment required.

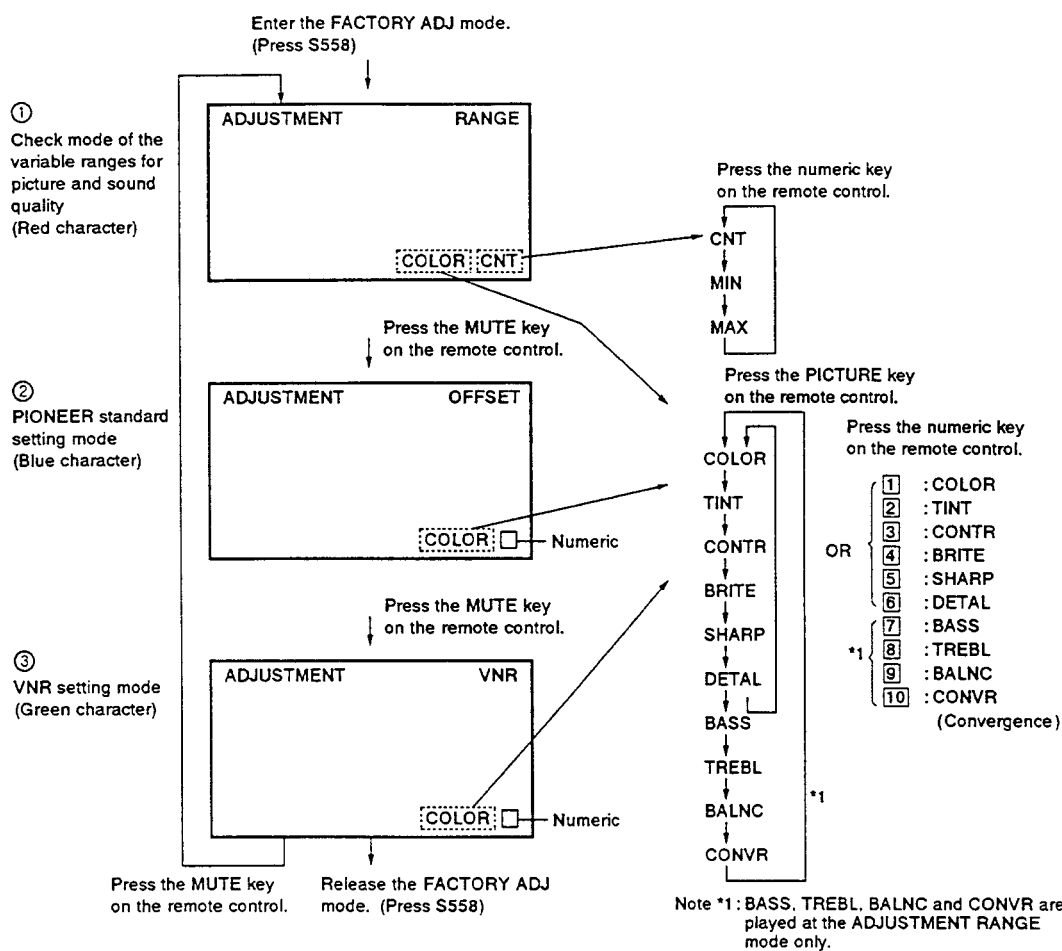


Fig. 9-1-1 Screen display of the FACTORY ADJ mode

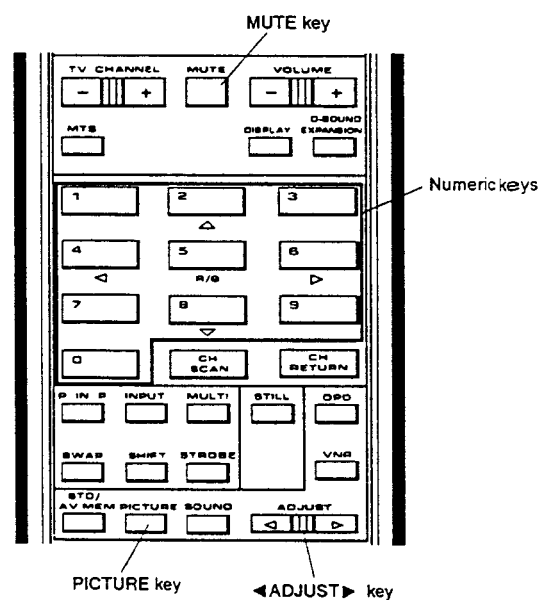


Fig. 9-1-2 Remote control unit

Fig. 9-1 FACTORY ADJ mode

9.1 FACTORY ADJ MODE

• What is FACTORY ADJ MODE ?

FACTORY ADJ mode is activated by pressing S558 at the front panel with a screwdriver or equivalent.
(See Fig.9-10.)

There are three FACTORY ADJ modes, as follows:

1. ADJUSTMENT RANGE Mode

Allows quick and easy variable range checks of the control items for picture and sound quality, etc (COLOR, TINT, CONTR, BRITE, SHARP, DETAL, BASS, TREBL, BALNC, CONVR).

2. ADJUSTMENT OFFSET Mode

Picture quality of the screen (PIONEER STANDARD) is selected when STD on the remote control is pressed.

3. ADJUSTMENT VNR Mode

Picture quality can be adjusted in this mode when VNR is turned ON.

When FACTORY ADJ mode is ON, picture and sound quality already adjusted will be reset to "0" and the position of convergence will reset to the center of the variable range.

When FACTORY ADJ mode returns from ON to OFF, the position of convergence, picture quality and sound quality may be adjusted by the user if necessary.

• How to use the FACTORY ADJ mode

① ADJUSTMENT RANGE Mode

FACTORY ADJ mode is activated by pressing S558 at the front panel with a small screwdriver or equivalent. Then the display for ADJUSTMENT RANGE mode will appear on the screen, as shown in Fig. 9-1-1 ①.

In this mode, the three points, CENTER(CNT), minimum(MIN) and maximum(MAX), with variable range for the control items (picture quality, sound quality and the position of convergence) can be easily confirmed. So, it is not necessary to move the ◀ ADJUST ▶ key up or down. The numeric keys on the remote control are used for confirming the condition.

The relationships between the control items and the numeric keys are as follows.

①: COLOR	⑥: DETAL
②: TINT	⑦: BASS
③: CONTR	⑧: TREBL
④: BRITE	⑨: BALNC
⑤: SHARP	⑩: CONVR (convergence)

For example, to confirm the variable range for TINT, press the ② key on the remote control. Press the ② repeatedly. The points to be checked are cyclically selected in sequence from among CNT, MIN and MAX.

For other keys, follow the same procedure. (To confirm the picture or sound, use signals whose variable ranges can be easily confirmed.)

Note:

- ⑨: Confirmation of BALNC
CNT : Output both channels
MIN : Output R channel only
MAX : Output L channel only
- ⑩: Confirmation of CONVR
CNT : Center position
MIN : Moves toward the upper right
MAX : Moves toward the lower left

② ADJUSTMENT OFFSET Mode

(PIONEER STANDARD SETTING mode)

ADJUSTMENT RANGE mode is changed to ADJUSTMENT OFFSET mode by pressing the MUTE key on the remote control, as shown in Fig. 9-1-1 ②.

The picture quality adjusted in this mode by selecting the normal condition of (COLOR, TINT, CONTR, BRITE, SHARP and DETAL) is the PIONEER STANDARD.

Adjustment is made by selecting the items for the picture using the numeric keys from ① to ⑥ and by selecting numerics displayed in the lower right portion of the screen using the ◀ ADJUST ▶ keys.

③ ADJUSTMENT VNR Mode (VNR SETTING mode)

ADJUSTMENT OFFSET mode is changed to ADJUSTMENT VNR mode by pressing the MUTE key on the remote control, as shown in Fig. 9-1-1 ③.

The picture quality adjusted in this mode by selecting the control items (COLOR, TINT, CONTR, BRITE, SHARP, DETAL) is the picture quality acquired with VNR in the ON position.

Adjustment is made in the same way as in ADJUSTMENT OFFSET mode. (However, input values differ between the two modes.)

9. ADJUSTMENT

- Adjustment items are described as follows.

9.1 FACTORY ADJ MODE

9.2 WHEN POWER SUPPLY ASSEMBLY IS REPAIRED

9.3 WHEN POWER SUPPLY ASSEMBLY IS REPLACED

9.4 WHEN VIDEO DEFLECTION ASSEMBLY IS REPAIRED OR REPLACED

(Deflection, Video, Control and Tuner sections)

9.5 WHEN CONVERGENCE ASSEMBLY IS REPAIRED OR REPLACED

9.6 WHEN AV I/O - 3P-Y/C SEP ASSEMBLY IS REPAIRED

9.7 WHEN AV I/O - 3P-Y/C SEP ASSEMBLY IS REPLACED

9.8 WHEN PINP ASSEMBLY IS REPAIRED OR REPLACED

9.9 WHEN FRONT CONTROL ASSEMBLY IS REPAIRED

9.10 WHEN FRONT CONTROL ASSEMBLY IS REPLACED

9.11 WHEN R, G OR B CRT DRIVE ASSEMBLY IS REPAIRED OR REPLACED

9.12 WHEN CRT ASSEMBLY R, G OR B IS REPLACED

9.13 WHEN LENS ASSEMBLY IS REPLACED

9.14 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED

9.15 DPO BASE SETTING

9.16 DPO SENSITIVITY ADJUSTMENT

9.17 ANODE CABLE CONNECTION AND DISCONNECTION

- These adjustment procedures are described separately for adjustments following assembly exchange and adjustments following repairs.

- When replacing the assemblies, always use recommended replacements.

- Symbols in parentheses next to the adjustment position () indicate denotes the relevant assembly to be adjusted.

S: POWER SUPPLY assembly

VR1: Focus variable resistor

V: VIDEO • DEFLECTION assembly

A: AV I/O - 3P • Y/C SEP assembly

C: CONVERGENCE assembly

P: PINP assembly

- The adjustment points and TP terminals on the each assemblies are shown in Fig. 9-8 thru 9-11.

Fig. 9-8:

R, G, B CRT DRIVE assemblies and deflection yoke.

Fig. 9-9:

Lens assembly (Red, Green, Blue).

Fig. 9-10:

CONVERGENCE assembly, front panel, FRONT CONTROL assembly and focus variable resistor.

Fig. 9-11:

VIDEO • DEFLECTION assembly, AV I/O - 3P • Y/C SEP assembly, POWER SUPPLY assembly and PINP assembly.

- Set the input terminals at the rear panel as follows unless otherwise noted.

VIDEO signal : INPUT LD VIDEO terminal

AUDIO signal : INPUT LD AUDIO terminal

- Set the picture quality to standard by remote control unit unless otherwise noted.

Mark	No.	Description	Part No.
	C886	ELECTR. CAPACITOR	CEAS101M10
	C887	CERAMIC CAPACITOR	CKDYF473Z50
	C888-890	ELECTR. CAPACITOR	CEAS010M50
	C891	CERAMIC CAPACITOR	CKDYF473Z50
	C892, 893	ELECTR. CAPACITOR	CEAS101M10
	C894	CERAMIC CAPACITOR	CKDYF473Z50
	C897	CERAMIC CAPACITOR	CCDSL470J50
	C898	CERAMIC CAPACITOR	CCDSL101J50
	C899	ELECTROLYTIC CAPACIT	CEAS2R2M50
	C900	ELECTR. CAPACITOR	CEAS470M10
	C901, 905	ELECTR. CAPACITOR	CEAS471M10
	C906-910	CERAMIC CAPACITOR	CKDYF473Z50
	C911	CERAMIC CAPACITOR	CCDSL270J50
	C912	CERAMIC CAPACITOR	CCDSL221J50
	C913-916	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

VR701	VR(47K Ω)	VRTS6VS473
R1382	METALFILM RESISTER	RN1/4PC4702F
R1393	CARBON FILM RESISTOR	RD1/4PMFL3R9J
	OTHER RESISTORS	RD1/8PM□□□J

OTHERS

X701, 702	Crystal resonator (14.31818MHz)	ASS1056
	SHIELD CASE	ANK1169
	SHIELD PLATE	ANK1170

PINP SUB ASSEMBLY (AWZ3656)**SEMICONDUCTORS**

Q702	TRANSISTOR	2SC1740S
Q703	TRANSISTOR	2SA933S
Q713, 714	TRANSISTOR	2SC1740S
Q717	TRANSISTOR	2SA933S

CAPACITORS

C828, 857	ELECTR. CAPACITOR	CEAS100M50
C895	ELECTR. CAPACITOR	CEAS101M10

RESISTORS

ALL RESISTORS	RD1/8PM□□□J
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Mark	No.	Description	Part No.
	C660	ELECTR. CAPACITOR	CEAS222M35
	C661, 662	ELECTR. CAPACITOR	CEAS010M50
	C663, 664	CERAMIC CAPACITOR	CKDYF473Z50
	C665	ELECTR. CAPACITOR	CEAS471M50
	C666	AUDIO FILM CAPACITOR	CFTXA124J50
	C667	CERAMIC CAPACITOR	CKDYF473Z50

RESISTORS

	R1132	CARBON FILM RESISTOR	RD1/4PMFL150J
	R1180	CARBONFILM RESISTOR	RD1/2PM152J
	R1181, 1182	CARBON FILM RESISTOR	RD1/4PMFL□□□J
	R1184	CARBONFILM RESISTOR	RD1/2PM152J
	R1186, 1187	CARBON FILM RESISTOR	RD1/4PMFL□□□J
		OTHER RESISTORS	RD1/8PM□□□J

PINP ASSEMBLY (AWZ3655)**SEMICONDUCTORS**

	IC701	LOGIC IC	TC4094BP
	IC702	VIDEO A/D D/A IC	MB40176PF
	IC703	VIDEO RAM	MB81C1501PF
	IC704	P IN P CONTROLLER IC	MB86153APF
	IC705	REGULATOR IC	NJM78M05FAS
	IC706		MB3511P
	Q701, 704	TRANSISTOR	2SC1740S
	Q705	TRANSISTOR	2SA933S
	Q706	TRANSISTOR	2SC1740S
	Q707	TRANSISTOR	2SA933S
	Q708-710	TRANSISTOR	2SC1740S
	Q711, 712	TRANSISTOR	2SA933S
	Q715	TRANSISTOR	2SC1740S
	Q716	TRANSISTOR	2SA933S
	Q718	TRANSISTOR	2SC1740S
	Q719	TRANSISTOR	2SA933S
	D701-704	DIODE	1SS252

COILS

	L701	AXIAL INDUCTOR	LAU2R2K
	L702	COIL (100 μ H)	ATH1046
	L703	AXIAL INDUCTOR	LAUR22M
	L704	AXIAL INDUCTOR	LAU151K
	L706-713	AXIAL INDUCTOR	LAU2R2K
	L715	AXIAL INDUCTOR	LAU100K
	L717	AXIAL INDUCTOR	LAU220K
	L718	AXIAL INDUCTOR	LAU101K
	L720-730	AXIAL INDUCTOR	LAUR22M

CAPACITORS

	C821	ELECTROLYTIC CAPACIT	CEAS221M10
	C822	CERAMIC CAPACITOR	CKDYF473Z50
	C823	ELECTR. CAPACITOR	CEAS471M16
	C824	CERAMIC CAPACITOR	CKDYF473Z50
	C825	ELECTR. CAPACITOR	CEAS101M10

Mark	No.	Description	Part No.
	C826	CERAMIC CAPACITOR	CKDYF473Z50
	C827	CERAMIC CAPACITOR	CCDSL101J50
	C829	ELECTR. CAPACITOR	CEAS100M50
	C830	CERAMIC CAPACITOR	CCDCH680J50
	C831	CERAMIC CAPACITOR	CKDYF103Z50
	C832	CERAMIC CAPACITOR	CCDCH150J50
	C833	ELECTR. CAPACITOR	CEAS100M50
	C834	CERAMIC CAPACITOR	CCDCH150J50
	C835	CERAMIC CAPACITOR	CKDYB102K50
	C836	CERAMIC CAPACITOR	CCDCH180J50
	C837	ELECTR. CAPACITOR	CEAS3R3M50
	C838	ELECTR. CAPACITOR	CEASR47M50
	C839	CERAMIC CAPACITOR	CCDSL101J50
	C840	CERAMIC CAPACITOR	CCDSL100D50
	C841	MYLOR FILM CAPACITOR	CQMA103J50
	C842	ELECTR. CAPACITOR	CEAS010M50
	C843	ELECTR. CAPACITOR	CEASR33M50
	C844	ELECTR. CAPACITOR	CEASR47M50
	C845	MYLOR FILM CAPACITOR	CQMA103J50
	C846	ELECTR. CAPACITOR	CEAS2R2M50
	C847	ELECTR. CAPACITOR	CEASR22M50
	C848	CERAMIC CAPACITOR	CCDSL101J50
	C849	ELECTR. CAPACITOR	CEAS101M10
	C850	CERAMIC CAPACITOR	CKDYF473Z50
	C851	CERAMIC CAPACITOR	CCDSL100D50
	C852	ELECTR. CAPACITOR	CEAS3R3M50
	C853	MYLOR FILM CAPACITOR	CQMA822J50
	C854	CERAMIC CAPACITOR	CCDSL100D50
	C855	CERAMIC CAPACITOR	CCDCH180J50
	C856	CERAMIC CAPACITOR	CKDYB102K50
	C858	CERAMIC CAPACITOR	CCDSL270J50
	C859, 860	CERAMIC CAPACITOR	CCDCH150J50
	C861	ELECTR. CAPACITOR	CEAS101M10
	C862	CERAMIC CAPACITOR	CKDYF473Z50
	C863	CERAMIC CAPACITOR	CKDYF103Z50
	C864	MYLOR FILM CAPACITOR	CQMA104J50
	C865	ELECTROLYTIC CAPACIT	CEAS010M50
	C866	CERAMIC CAPACITOR	CCDCH680J50
	C867	CERAMIC CAPACITOR	CCDSL101J50
	C868	ELECTR. CAPACITOR	CEAS100M50
	C869	ELECTR. CAPACITOR	CEAS101M16
	C870	ELECTR. CAPACITOR	CEAS101M10
	C871	CERAMIC CAPACITOR	CCDSL101J50
	C872	CERAMIC CAPACITOR	CKDYF473Z50
	C873	CERAMIC CAPACITOR	CCDSL1470J50
	C874	ELECTR. CAPACITOR	CEAS221M10
	C875	CERAMIC CAPACITOR	CKDYF473Z50
	C876	CERAMIC CAPACITOR	CCDSL101J50
	C877	ELECTR. CAPACITOR	CEAS010M50
	C878	CERAMIC CAPACITOR	CCDSL101J50
	C879	ELECTR. CAPACITOR	CEAS221M10
	C880, 882	CERAMIC CAPACITOR	CKDYF473Z50
	C883	MYLOR FILM CAPACITOR	CQMA102J50
	C884	ELECTR. CAPACITOR	CEAS101M10
	C885	CERAMIC CAPACITOR	CKDYF473Z50

Mark	No.	Description	Part No.
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IR RECEIVER ASSEMBLY (AWZ3543)**CAPACITORS**

C678	CERAMIC CAPACITOR	CCMSL121J50
C679	ELECTR. CAPACITOR	CEJA101M6

RESISTOR

R1220	CARBONFILM RESISTOR	RD1/8PM102J
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OTHERS

	REMOTE RECEIVER UNIT	AXX1010
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SP TERMINAL ASSEMBLY (AWZ3545)**SWITCH**

S501	SLIDE SWITCH (SPEAKER SELECTOR)	ASH1001
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RESISTORS

	ALL RESISTORS	RD1/8PM□□□J
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OTHERS

	PIN JACK (2P)	AKB1126
	SPEAKER TERMINAL 4-P	AKE1021

FRONT INPUT TERMINAL ASSEMBLY (AWZ3547)**OTHERS**

	PHONO JACK 1-P	AKB-104
	PHONO JACK 1-P	AKB-105
	PHONO JACK 1-P	AKB-106
	SOCKET	AKP1016

RESISTORS

	ALL RESISTORS	RD1/8PM□□□J
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AUDIO-DSE ASSEMBLY (AWZ3538)**SEMICONDUCTORS**

IC501		PA0049
IC503	OP-AMP IC	NJM4558S-X
IC504	AUDIO IC	TA7630P
IC505	AUDIO IC	LA4280
Q501-506	TRANSISTOR	2SC2458

Q507, 508	TRANSISTOR	2SC1740S
Q509, 510	TRANSISTOR	2SC3327
Q511, 512	TRANSISTOR	2SC1740S
Q513	TRANSISTOR	2SA933S
Q514	TRANSISTOR	2SC1740S

D501	DIODE	11E2
D502, 503	DIODE	1SS252
D504, 505	ZENER DIODE	RD6.8ESB2
D506-514	DIODE	1SS252
D515	ZENER DIODE	RD5.1ESB2
D516-518	DIODE	1SS252
D520	DIODE	1SS252

COILS

L501, 502	COIL (1 μ H)	ATH-133
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Mark	No.	Description	Part No.
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CAPACITORS

C569, 597	ELECTROLYTIC CAPACIT	CEAS221M50
C598, 599	CERAMIC CAPACITOR	CKMYB151K50
C600	ELECTR. CAPACITOR	CEAS100M25
C601	ELECTR. CAPACITOR	CEAS102M16
C602-604	ELECTR. CAPACITOR	CEAS010M50

C605	ELECTR. CAPACITOR	CEASR47M50
C607	ELECTR. CAPACITOR	CEAS010M50
C608	MYLOR FILM CAPACITOR	CQMA102K50
C609	ELECTR. CAPACITOR	CEAS102M16
C610	MYLOR FILM CAPACITOR	CQMA102K50

C611	ELECTR. CAPACITOR	CEAS4R7M50
C612, 613	AUDIO FILM CAPACITOR	CFTXA154J50
C614	AUDIO FILM CAPACITOR	CFTXA223J50
C615	AUDIO FILM CAPACITOR	CFTXA474J50
C616, 617	ELECTR. CAPACITOR	CEAS4R7M50

C618	ELECTROLYTIC CAPACIT	CEAS6R8M50
C619	ELECTR. CAPACITOR	CEAS470M10
C620	AUDIO FILM CAPACITOR	CFTXA104J50
C621, 622	CERAMIC CAPACITOR	CKCYB562K50
C623, 624	AUDIO FILM CAPACITOR	CFTXA124J50

C625	ELECTR. CAPACITOR	CEAS470M10
C626, 627	ELECTR. CAPACITOR	CEAS100M50
C628	AUDIO FILM CAPACITOR	CFTXA223J50
C629	AUDIO FILM CAPACITOR	CFTXA224J50
C630	ELECTR. CAPACITOR	CEAS470M10

C631	ELECTR. CAPACITOR	CEAS100M50
C632	CERAMIC CAPACITOR	CKDYF473Z50
C633	MYLOR FILM CAPACITOR	CQMA562K50
C634	AUDIO FILM CAPACITOR	CFTXA563J50
C635	ELECTR. CAPACITOR	CEAS222M16

C636	MYLOR FILM CAPACITOR	CQMA152K50
C637, 638	AUDIO FILM CAPACITOR	CFTXA123J50
C639	AUDIO FILM CAPACITOR	CFTXA104J50
C640, 641	CERAMIC CAPACITOR	CKMYB561K50
C642	ELECTR. CAPACITOR	CEAS470M10

C643	MYLOR FILM CAPACITOR	CQMA272K50
C644	AUDIO FILM CAPACITOR	CFTXA273J50
C645	PL. STYRENE CAPACITOR	CQSA681J50
C646	MYLOR FILM CAPACITOR	CQMA682K50
C647, 648	ELECTR. CAPACITOR	CEAS2R2M50

C649	CERAMIC CAPACITOR	CKDYF473Z50
C650	ELECTR. CAPACITOR	CEAS100M50
C651	ELECTROLYTIC CAPACIT	CEAS330M25
C652	ELECTR. CAPACITOR	CEAS470M50
C653	ELECTR. CAPACITOR	CEAS2R2M50

C654	ELECTROLYTIC CAPACIT	CEAS102M6
C655	ELECTR. CAPACITOR	CEAS2R2M50
C656	ELECTR. CAPACITOR	CEAS222M35
C657	ELECTR. CAPACITOR	CEAS330M25
C658	AUDIO FILM CAPACITOR	CFTXA124J50

Mark	No.	Description	Part No.
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AV I/O - 3P•Y/C SEP ASSEMBLY (AWZ3529)

SEMICONDUCTORS

IC571	AV SELECTOR IC	PA0040
IC572	LOGIC IC	TC4066BP
Q571	TRANSISTOR	2SA933S
Q572, 573	TRANSISTOR	2SC1740S
Q574-578	TRANSISTOR	2SA933S
Q579	TRANSISTOR	2SC1740S
Q580	TRANSISTOR	2SA933S
Q581	TRANSISTOR	2SC1740S
Q582	TRANSISTOR	2SA933S
Q583-587	TRANSISTOR	2SC1740S
Q590-592	TRANSISTOR	2SC1740S
Q593	TRANSISTOR	RN1203
D571	DIODE	1SS252
D573-577	DIODE	1SS252

COILS

L571	AXIAL INDUCTOR	LAU820K
L572, 573	AXIAL INDUCTOR	LAU150J
L575	COIL	ATG1006

CAPACITORS

C951-954	ELECTR. CAPACITOR	CEAS010M50
C955, 956	ELECTR. CAPACITOR	CEJA010M50
C957	ELECTR. CAPACITOR	CEAS102M10
C958	ELECTR. CAPACITOR	CEAS2R2M50
C959, 960	ELECTR. CAPACITOR	CEAS220M16
C961	ELECTR. CAPACITOR	CEJA220M10
C962	ELECTR. CAPACITOR	CEAS2R2M50
C963	ELECTR. CAPACITOR	CEAS102M10
C964	ELECTR. CAPACITOR	CEAS101M16
C965, 966	ELECTR. CAPACITOR	CEAS220M16
C968-970	ELECTR. CAPACITOR	CEAS010M50
C971	ELECTR. CAPACITOR	CEAS220M16
C972	ELECTR. CAPACITOR	CEAS010M50
C974	ELECTR. CAPACITOR	CEAS222M16
C975, 976	CERAMIC CAPACITOR	CKCYF103Z50
C977	ELECTR. CAPACITOR	CEAS100M50
C978, 979	CERAMIC CAPACITOR	CKCYF103Z50
C980	ELECTR. CAPACITOR	CEAS101M10
C981	CERAMIC CAPACITOR	CKCYF103Z50
C982	ELECTR. CAPACITOR	CEANPR22M50
C983	CERAMIC CAPACITOR	CKCYF102Z50
C984	CERAMIC CAPACITOR	CCCSL390J50
C985	ELECTR. CAPACITOR	CEJA100M16
C986	ELECTR. CAPACITOR	CEAS101M10
C987	ELECTR. CAPACITOR	CEAS330M16
C988	ELECTR. CAPACITOR	CEAS010M50
C989	ELECTR. CAPACITOR	CEAS220M16
C990	CERAMIC CAPACITOR	CKCYF103Z50
C991	CERAMIC CAPACITOR	CKCYF102Z50
C992	CERAMIC CAPACITOR	CKCYF103Z50

Mark	No.	Description	Part No.
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C993	CERAMIC CAPACITOR	CCCSL151J50
C994	CERAMIC CAPACITOR	CKDYF103Z50
C995	ELECTR. CAPACITOR	CEAS330M16
C996	CERAMIC CAPACITOR	CKDYF103Z50
C997	ELECTR. CAPACITOR	CEAS330M16

RESISTORS

VR571	VR	ACP1040
R1651	METAL OXIDE RESISTOR	RS3LMF560J
R1652-1654	CARBONFILMRESISTOR	RD1/2PMFL□□□J
	OTHER RESISTORS	RD1/8PM□□□J

OTHERS

	PIN JACK(12P)	AKB1094
	PIN JACK(3P)	AKB1102
	JACK	AKN-207
DL571	GLASS DELAY LINE	ATN1011

FRONT CONTROL ASSEMBLY (AWZ3540)

SEMICONDUCTORS

IC551	MCU	PD5136
Q551	TRANSISTOR	2SC1740S
D551	LED(GREEN)	AEL-459
D552	ZENER DIODE	RD3.0ESB
D553, 554	DIODE	1SS252

SWITCHES

S551-566	SWITCH	ASG1034
	POWER, PRESET MENU, DIGITAL PINP(INPUT, ON/OFF), PRESET MENU (ON/OFF, SELECT ADJ(+, -), SET), FACTORY ADJ, DPO. STD/AV MEM, VOLUME(+, -), CHANNEL(+, -), INPUT SELECTOR	

CAPACITORS

C671	ELECTR. CAPACITOR	CEJA2R2M50
C672	CERAMIC CAPACITOR	CGMYX103M16
C673	AUDIO FILM CAPACITOR	CFTXA104J50
C674, 675	CERAMIC CAPACITOR	CCDCH221J50
C676	CERAMIC CAPACITOR	CKMYF172Z50
C677	ELECTROLYTIC CAPACIT	CEJA330M16
C680	ELECTROLYTIC CAPACIT	CEJA100M25

RESISTORS

VR551	VR (47KΩ)	VRTB6V5473
R1226	CARBON FILM RESISTOR	RD1/2PMF820J
	OTHER RESISTORS	RD1/8PM□□□J

OTHERS

PC551	CdS	U5C-08SC
X551	CERAMIC OSCILLATOR	ASS1043

Mark	No.	Description	Part No.
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G.CRT DRIVE ASSEMBLY (AWZ3525)**SEMICONDUCTORS**

Q821	TRANSISTOR	2SC2278
D821	DIODE	1SS252

COILS

L821, 822	AXIAL INDUCTOR	LAU470K
L823	AXIAL INDUCTOR	LAU101K

CAPACITORS

C931	ELECTR. CAPACITOR	CEAS101M16
C932	CERAMIC CAPACITOR	CKCYB681K50
C933	ELECTR. CAPACITOR (4.7 μ /250V)	ACH-378
C934	CERAMIC CAPACITOR (1000p/2KV)	ACG1001

RESISTORS

R761	CARBONFILM RESISTOR	RD1/8PM103J
R762	RESISTOR(1K, 1/2W)	ACN1006
R763, 764	METAL OXIDE RESISTOR	RS3LMF332J
R765	RESISTOR(47, 1/2W)	ACN-225

OTHERS

CRT SOCKET	AKG1004
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B.CRT DRIVE ASSEMBLY (AWZ3526)**SEMICONDUCTORS**

Q841	TRANSISTOR	2SC2278
D841	DIODE	1SS252

COILS

L841, 842	AXIAL INDUCTOR	LAU470K
L843	AXIAL INDUCTOR	LAU101K

CAPACITORS

C941	ELECTR. CAPACITOR	CEAS101M16
C942	CERAMIC CAPACITOR	CKCYB681K50
C943	ELECTR. CAPACITOR (4.7 μ /250V)	ACH-378
C944	CERAMIC CAPACITOR (1000p/2KV)	ACG1001

RESISTORS

R771	CARBONFILM RESISTOR	RD1/8PM103J
R772	RESISTOR(1K, 1/2W)	ACN1006
R773, 774	METAL OXIDE RESISTOR	RS3LMF332J
R775	RESISTOR(47, 1/2W)	ACN-225

OTHERS

CRT SOCKET	AKG1004
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Mark	No.	Description	Part No.
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S - 3P TERMINAL ASSEMBLY (AWZ3532)**CAPACITORS**

C946	CERAMIC CAPACITOR	CKDYF103Z50
C947	ELECTR. CAPACITOR	CEAS220M16
C948	CERAMIC CAPACITOR	CKDYF103Z50
C949	ELECTR. CAPACITOR	CEAS220M16
C950	CERAMIC CAPACITOR	CKDYF103Z50
C998	ELECTR. CAPACITOR	CEAS220M16

RESISTORS

R1630-1635	CARBONFILM RESISTOR	RD1/8PM750J
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OTHERS

SOCKET	AKP1065
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PINP SELECT ASSEMBLY (AWZ3534)**SEMICONDUCTORS**

IC461, 462	E-SW IC	NJM2235S
Q461	TRANSISTOR	2SA933S
D461-470	DIODE	1SS252

CAPACITORS

C561	ELECTR. CAPACITOR	CEAS100M50
C562	CERAMIC CAPACITOR	CKCYF103Z50
C563-566	ELECTR. CAPACITOR	CEAS100M50
C567	CERAMIC CAPACITOR	CKCYF103Z50
C568	ELECTR. CAPACITOR	CEAS100M50
C569	ELECTR. CAPACITOR	CEAS101M16

RESISTORS

ALL RESISTORS	RD1/8PM□□□J
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Mark	No.	Description	Part No.
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CONVERGENCE ASSEMBLY(AWZ3523)**SEMICONDUCTORS**

IC601	TV IC	PA0036
IC602	REGULATOR IC	UPC78L12J
IC603	REGULATOR IC	NJM79L15A
IC604-606	OP AMP	M5238LF
IC607	TV HIC	STK4277-SL

D601	ZENER DIODE	HZS9A2L
D602-604	DIODE	1SS252
D605	ZENER DIODE	RD5.1ESB2
D606	DIODE	1SS252
D607	ZENER DIODE	RD5.1ESB2
D608	ZENER DIODE	HZS12BL
D609-623	ZENER DIODE	RD27ESB2

CAPACITORS

C691	ELECTR. CAPACITOR	CEASR33M50
C692	ELECTR. CAPACITOR	CEAS010M50
C694	MYLOR FILM CAPACITOR	CQMA821J50
C695	ELECTR. CAPACITOR	CEAS010M50
C696	ELECTR. CAPACITOR	CEAS100M50
C697	MYLOR FILM CAPACITOR	CQMA224J50
C698	ELECTR. CAPACITOR	CEASR33M50
C699	ELECTR. CAPACITOR	CEAS100M50
C700	ELECTR. CAPACITOR	CEAS010M50
C701	CERAMIC CAPACITOR	CKDYF473Z50

C702	ELECTR. CAPACITOR	CEAS100M50
C703	MYLOR FILM CAPACITOR	CQMA332J50
C704	MYLOR FILM CAPACITOR	CQMA224J50
C705	ELECTR. CAPACITOR	CEAS2R2M50
C706	PL. STYRENE CAPACITOR	CQSA152J50

C707	ELECTR. CAPACITOR	CEAS2R2M50
C708	MYLOR FILM CAPACITOR	CQMA681J50
C709	MYLOR FILM CAPACITOR	CQMA471J50
C710, 711	CERAMIC CAPACITOR	CKDYF473Z50
C712	PL. STYRENE CAPACITOR	CQSA102J50

C713, 714	ELECTROLYTIC CAPACIT	CEAS102M6
C715	ELECTR. CAPACITOR	CEANP010M50
C716	ELECTR. CAPACITOR	CEAS101M16
C717-719	CERAMIC CAPACITOR	CKDYF473Z50
C720	ELECTR. CAPACITOR	CEAS101M16

C721, 722	ELECTR. CAPACITOR	CEAS100M50
C723-726	CERAMIC CAPACITOR	CCMSL470J50
C727, 728	ELECTR. CAPACITOR	CEAS221M10
C729	CERAMIC CAPACITOR	CCMSL470J50
C730-732	ELECTR. CAPACITOR	CEAS221M10

C733	CERAMIC CAPACITOR	CCMSL470J50
C734	CERAMIC CAPACITOR	CKDYF473Z50
C735	ELECTR. CAPACITOR	CEAS221M10
C736, 737	CERAMIC CAPACITOR	CKDYF473Z50
C738, 739	ELECTR. CAPACITOR	CEAS221M10

C740	CERAMIC CAPACITOR	CCMSL470J50
C741, 742	ELECTR. CAPACITOR	CEAS221M10
C743	ELECTROLYTIC CAPACIT	CEHAQ471M35
C744	CERAMIC CAPACITOR	CKDYF473Z50
C745	ELECTROLYTIC CAPACIT	CEHAQ471M35

Mark	No.	Description	Part No.
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C746	CERAMIC CAPACITOR	CKDYF473Z50
C747	CERAMIC CAPACITOR	CCMSL470J50
C748-750	CERAMIC CAPACITOR	CKDYF473Z50
C751	CERAMIC CAPACITOR	CCMSL470J50

RESISTORS

VR601	VR (10K Ω)	ACP1043
VR602, 603	VR (47K Ω)	ACP1045
VR604	VR (220K Ω)	ACP1047
VR605-607	VR (4.7K Ω)	ACP1042
VR608	VR (22K Ω)	ACP1044

VR609-640	VR (4.7K Ω)	ACP1042
R303	CARBON FILM RESISTOR	RD1/4PMFL361J
R313	CARBON FILM RESISTOR	RD1/4PMFL101J
R314, 315	CEMENT RESISTOR (4.7.5W)	ACN1059
R322	METAL OXIDE RESISTOR	RS2LMF121J

R325	METAL OXIDE RESISTOR	RS2LMF151J
R520	METAL OXIDE RESISTOR	RS2LMF6R8J
R522-525	METAL OXIDE RESISTOR	RS2LMF6R8J
R526, 527	METAL OXIDE RESISTOR	RS2LMF101J
R528	METAL OXIDE RESISTOR	RS2LMF220J

OTHER RESISTORS RD1/8PM□□□J

R.CRT DRIVE ASSEMBLY(AWZ3524)**SEMICONDUCTORS**

Q801	TRANSISTOR	2SC2278
D801	DIODE	1SS252

COILS

L801, 802	AXIAL INDUCTOR	LAU470K
L803	AXIAL INDUCTOR	LAU101K

CAPACITORS

C921	ELECTR. CAPACITOR	CEAS101M16
C922	CERAMIC CAPACITOR	CKCYB681K50
C923	ELECTR. CAPACITOR (4.7 μ /250V)	ACH-378
C924	CERAMIC CAPACITOR (1000p/2KV)	ACG1001

RESISTORS

R751	CARBONFILM RESISTOR	RD1/8PM103J
R752	RESISTOR(1K, 1/2W)	ACN1006
R753, 754	METAL OXIDE RESISTOR	RS3LMF332J
R755	RESISTOR(47, 1/2W)	ACN-225

OTHERS

CRT SOCKET AKG1004

Mark	No.	Description	Part No.
	C489	CER. CAP. (1000P/2KV)	ACG-040
	C490	ELECTR. CAPACITOR (4.7 μ /250V)	ACH-378
	C491	CERAMIC CAPACITOR	CCDSL221K500
	C492	AUDIO FILM CAPACITOR	CFTXA474J50
	C493	ELECTR. CAPACITOR (47 μ /100V)	ACH1132
	C494	CERAMIC CAPACITOR	CCDSL221K500
	C495	CER. CAP. (1000P/2KV)	ACG-040
	C496	CERAMIC CAPACITOR	CKCYF103Z50
	C497	MYLOR FILM CAPACITOR	CQMA822J50
	C498	ELECTR. CAPACITOR	CEHAQ010M50
	C499	CER. CAP. (3300p/2KV)	ACG1008
	C500-503	CERAMIC CAPACITOR	CCDSL221K500
	C504	CCA (100P/2KV)	ACG-032
	C505, 506	ELECTR. CAPACITOR	CEHAQ222M35
	C507	ELECTR. CAPACITOR (3300 μ /50V)	ACH1165
	C508	ELECTR. CAPACITOR	CEHAQ222M50
	C509	ELECTR. CAPACITOR (560 μ /160V)	ACH1146
	C510	ELECTROLYTIC CAPACIT	CEHAQ332M35
	C511	CERAMIC CAPACITOR	CKDYF103Z500
	C512, 513	CERAMIC CAPACITOR	CKCYF473Z50
	C514	ELECTROLYTIC CAPACIT	CEHAQ331M35
	C515	CERAMIC CAPACITOR	CKDYF103Z500
	C516	CERAMIC CAPACITOR	CKCYF473Z50
	C517, 518	ELECTR. CAPACITOR	CEHAQ100M50
	C519	CERAMIC CAPACITOR	CKCYB681K50
	C520	ELECTR. CAPACITOR	CEHAQ010M50
	C521	ELECTR. CAPACITOR	CEHAQ100M50
	C522	ELECTR. CAPACITOR	CEAS221M16
	C523	CERAMIC CAPACITOR	CKCYF473Z50
	C526	ELECTROLYTIC CAPACIT	CEHAQ471M16

RESISTORS

×	VR351	VR	
×	VR352	VR	
	VR401	VR(1K Ω)	VRTS6VS102
	R102	CARBONFILM RESISTOR	RD1/4PMFL3R9J
×	R105	CARBONFILM RESISTOR	
×	R106	CARBONFILM RESISTOR	
×	R107	CARBONFILM RESISTOR	
×	R108	CARBONFILM RESISTOR	
×	R109	CARBONFILM RESISTOR	
	R110	CARBONFILM RESISTOR	RD1/8PM122J
×	R111	CARBONFILM RESISTOR	
×	R112	CARBONFILM RESISTOR	
×	R113	CARBONFILM RESISTOR	
	R115	CARBON FILM RESISTOR	RD1/4PMFL3R9J
×	R116	CARBONFILM RESISTOR	
×	R117	CARBONFILM RESISTOR	
	R118	CARBON FILM RESISTOR	RD1/4PMFL470J
×	R120	CARBONFILM RESISTOR	
×	R121	CARBONFILM RESISTOR	
	R123	CARBON FILM RESISTOR	RD1/2PM361J

Mark	No.	Description	Part No.
	R126	METAL OXIDE RESISTOR	RS3PMFR68J
×	R131	CARBONFILM RESISTOR	
	R132	METAL OXIDE RESISTOR	RS3PMF562J
	R134	CARBON FILM RESISTOR	RD1/2PMFL222J
×	R135	CARBON FILM RESISTOR	
	R137	CARBON FILM RESISTOR	RD1/4PMFL471J
×	R138	METALFILM RESISTOR	
	R139	CARBON FILM RESISTOR	RD1/4PMFL470J
	R141	CARBON FILM RESISTOR	RD1/2PM102J
×	R142	CARBONFILM RESISTOR	
	R143	METAL OXIDE RESISTOR	RS3PMFR68J
	R144	CARBON FILM RESISTOR	RD1/4PMFL2R2J
	R145	METAL OXIDE RESISTOR	RS1PMF220J
	R149	CARBONFILM RESISTOR	RD1/2PM122J
△	R150, 151	METALFILM RESISTER	RN1/2PC□□□□F
	R152	RESISTOR(47, 1/2W)	ACN-225
	R202, 203	RESISTOR(2.2M, 1/2W)	ACN-208
	R211, 216	RESISTOR (1.0, 5W)	ACN1032
	R219	METAL OXIDE RESISTOR	RS1LMF473J
	R220, 221	METAL OXIDE RESISTOR	RS2LMFR33J
	R223, 224	CARBON FILM RESISTOR	RD1/4PMFL□□□J
	R225	METAL OXIDE RESISTOR	RS3LMF2R2J
	R226	RESISTOR(6.8, 10W)	RT10PD6R8J
	R227	METAL OXIDE RESISTOR	RS3LMF2R2J
	R228, 230	CARBONFILM RESISTOR	RD1/2PM□□□J
	R232	METALFILM RESISTOR	RD1/2PM10J
	R233, 234	METALFILM RESISTOR	RN1/4PC□□□□F
	R236	METALFILM RESISTOR	RN1/4PC16J3F
	R241	METAL OXIDE RESISTOR	RS2LMF223J
	R242, 243	CEMENT RESISTOR (18, 10W)	ACN1057
	R244	METAL OXIDE RESISTOR	RS1LMF272J
	R245	RESISTOR (1.0, 5W)	ACN1032
	R258, 259	METALFILM RESISTER	RN1/4PC□□□□F
		OTHER RESISTORS	RD1/8PM□□□J

OTHERS

△	FU401	FUSE(8A) MICA SHEET	AEK1002 AEP-056
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Mark	No.	Description	Part No.
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☆ POWER SUPPLY ASSEMBLY (AWV1203)

SEMICONDUCTORS

	IC351		RC4558DXP
	IC401, 402	PHOTOCOUPLER	ON3161-Q
×	Q351, 352	TRANSISTOR	
	Q353	TRANSISTOR	2SC2705
	Q354	TRANSISTOR	2SA1145
	Q355	TRANSISTOR	2SC3332
	Q356	TRANSISTOR	2SD1276A
△	Q357	TRANSISTOR	2SD1911(D)
	Q358	TRANSISTOR	2SC1740S
	Q359	TRANSISTOR	2SA1145
	Q401	TRANSISTOR	2SA933S
	Q402-404	TRANSISTOR	2SC1740S
	Q405	TRANSISTOR	2SC3451(D)
	Q406	TRANSISTOR	2SB824
	Q407	TRANSISTOR	2SC1740S
	Q408	TRANSISTOR	2SC2705
	Q410	TRANSISTOR	2SD1276A
	Q411	TRANSISTOR	2SA933S
	Q412	TRANSISTOR	2SD1276A
	Q413	TRANSISTOR	2SC1740S
×	D351, 352	ZENER DIODE	
	D353-355	DIODE	1SS252
	D357	DIODE	11DF2FD
	D358	DIODE	ES1F
	D359	DIODE	RU1
	D401, 402	DIODE	1SS145
	D403	ZENER DIODE	HZS6B1L
	D404, 405	DIODE	1SS145
	D406	DIODE	1SS252
	D407	DIODE	RB604(A)
	D408-412	DIODE	1SS252
	D414	DIODE	1SS252
	D415	DIODE	11DF1FD
	D416	DIODE	1SS252
	D417	DIODE	11DF1FD
	D418-420	DIODE	1SS252
	D422	ZENER DIODE	HZS6C2L
	D423	DIODE	1SS252
	D424	DIODE	RL4Z(A)
	D425	DIODE	FMP-G12S
	D426, 427	DIODE	RL4Z(A)
	D428	DIODE	RG4A(A)
	D429	ZENER DIODE	HZS6A1L
	D430	ZENER DIODE	HZS6B1L
	D431	ZENER DIODE	HZS18-1L
	D432	ZENER DIODE	HZS6B1L
	D433	DIODE	RL2Z

Mark	No.	Description	Part No.
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RELAY

	RY403	RELAY	ASR1036
	RY404	RELAY	ASR1027

COILS AND TRANSFORMERS

	L351	INDUCTOR	LTA272J
	L401, 402	LINE FILTER	ATF1031
	L403	COIL (1 μ H)	ATH-133
	L404-409	FERRITE BEAD	ATX-028
	L412-415	FERRITE BEAD	ATX-028
	T351	H. DRIVE TRANSFORMER	ATK1045
×	△ T352	CONVERTER TRANS	
△	T401	POWER TRANSFORMER	ATT1120
△	T402	CONVERTER TRANS	ATK1058

CAPACITORS

	C441	CERAMIC CAPACITOR	CKCYB222K50
	C442	CERAMIC CAPACITOR	CKCYF473Z50
	C443	ELECTROLYTIC CAPACIT	CEHAQ221M16
	C444	ELECTROLYTIC CAPACIT	CEHAQ100M25
	C445	ELECTROLYTIC CAPACIT	CEHAQ221M10
	C446	CERAMIC CAPACITOR	CKCYB102K50
	C447	ELECTR. CAPACITOR	CEHAQ010M50
	C448	CERAMIC CAPACITOR	CKCYF103Z50
	C449	ELECTROLYTIC CAPACIT	CEHAQ221M10
	C450	ELECTROLYTIC CAPACIT	CEHAQ100M2C
	C451	CERAMIC CAPACITOR	CCDSL101K500
	C452	ELECTROLYTIC CAPACIT	CEHAQ220M16
	C453	CERAMIC CAPACITOR	CKCYF222Z500
	C454	CERAMIC CAPACITOR	CCDSL101K500
	C455	CERAMIC CAPACITOR	CKCYB392K500
	C456	ELECTROLYTIC CAPACIT	CEHAQ4R7M50
	C457	ELE. CAP. (10 μ 160V)	ACH1117
	C458	ELECTR. CAPACITOR	CEHAQ100M50
	C459	ELECTROLYTIC CAPACIT	CEHAQ220M2C
	C460	CER. CAP. (680P/2KV)	ACG1024
△	C461	CAPACITOR	CFPHW123H3D
	C462	ELECTROLYTIC CAPACIT	CEHAQ220M25
	C463	CERAMIC CAPACITOR	CKCYF473Z50
	C465	CERAMIC CAPACITOR	CKCYB681K50
	C468	CERAMIC CAPACITOR	CKCYF103Z50
	C469	CERAMIC CAPACITOR	CCDSL101K500
	C472, 473	FLM CAP. (0.1/250V)	ACI-507
	C474	ELECTROLYTIC CAPACIT	CEHAQ102M25
	C475	CERAMIC CAPACITOR	CKCYF103Z50
	C476, 477	FLM CAP. (6800P/250V)	ACI1009
	C478	ELECTR. CAPACITOR	CEIS470M25
	C479, 480	FLM CAP. (6800P/250V)	ACI1009
	C481, 482	CER CAP.(0.01/AC250V)	ACI-001
	C483	ELECTR. CAPACITOR	CEIS100M50
	C484, 485	CER CAP.(0.01/AC250V)	ACI-001
	C486	ELECTR. CAPACITOR	CEIS470M25
	C487	ELECTR. CAPACITOR (470 μ /200V)	ACH1147
	C488	ELECTR. CAPACITOR (820 μ /200V)	ACH1148

Mark	No.	Description	Part No.
C341		ELECTR. CAPACITOR	CEASR47M50
C342		ELECTR. CAPACITOR	CEAS470M16
C343		CERAMIC CAPACITOR	CKDYB102K50
C344		CERAMIC CAPACITOR	CCDRH270J50
C345		ELECTR. CAPACITOR	CEAS470M16
C346		ELECTR. CAPACITOR	CEAS100M50
C347, 348		CERAMIC CAPACITOR	CKDYF103Z50
C349		ELECTR. CAPACITOR	CEAS470M16
C350		ELECTR. CAPACITOR	CEAS010M50
C351		CERAMIC CAPACITOR	CKDYB102K50
C352		ELECTR. CAPACITOR	CEAS331M16
C353		ELECTR. CAPACITOR	CEAS470M16
C354		CERAMIC CAPACITOR	CKDYF103Z50
C355		CERAMIC CAPACITOR	CKDYF473Z50
C356		CERAMIC CAPACITOR	CCDCH050C50
C357		MYLOR FILM CAPACITOR	CQMA272J50
C358		CERAMIC CAPACITOR	CKDYF473Z50
C359		CERAMIC CAPACITOR	CKDYF103Z50
C360		CERAMIC CAPACITOR	CKDYB102K50
C361		ELECTR. CAPACITOR	CEANP4R7M35
C362		CERAMIC CAPACITOR	CKDYB222K50
C363		CERAMIC CAPACITOR	CKDYB102K50
C364		ELECTR. CAPACITOR (10 μ 50V)	ACH1129
C365		ELECTR. CAPACITOR	CEAS470M16
C366		CERAMIC CAPACITOR	CKDYB222K50
C368		MYLOR FILM CAPACITOR	CQMA563J50
C369		ELECTR. CAPACITOR	CEAS2R2M50
C370		ELECTR. CAPACITOR	CEAS010M50
C371		CERAMIC CAPACITOR	CKDYB222K50
C372		ELECTR. CAPACITOR (3.3 μ /50V)	ACH1128
C373		CERAMIC CAPACITOR	CKDYB102K50
C374		MYLOR FILM CAPACITOR	CQMA103J50
C375		ELECTR. CAPACITOR	CEAS2R2M50
C376		ELECTR. CAPACITOR	CEAS4R7M50
C378, 379		ELECTR. CAPACITOR	CEAS4R7M50
C380		AUDIO FILM CAPACITOR	CFTXA473J50
C381		CERAMIC CAPACITOR	CKDYF473Z50
C382, 383		ELECTR. CAPACITOR	CEAS330M16
C391		CERAMIC CAPACITOR	CCDCH390J50
C392		CERAMIC CAPACITOR	CCDCH820J50
C393, 394		CERAMIC CAPACITOR	CKDYF473Z50
C395-401		ELECTR. CAPACITOR	CEAS010M50
C402		CERAMIC CAPACITOR	CKDYB102K50
C403		ELECTR. CAPACITOR	CEAS100M50
C404		ELECTR. CAPACITOR	CEAS330M16
C405		ELECTR. CAPACITOR	CEAS101M10
C406		ELECTR. CAPACITOR	CEAS010M50
C408-414		ELECTR. CAPACITOR	CEAS2R2M50
C417		CERAMIC CAPACITOR	CKDYF103Z50
C420		CERAMIC CAPACITOR	CKDYF473Z50
C422		CERAMIC CAPACITOR	CKDYF103Z50
C423		CERAMIC CAPACITOR	CKDYB222K50
C424-426		CERAMIC CAPACITOR	CKDYF473Z50
C429		CERAMIC CAPACITOR	CKDYF103Z50
C430, 435		CERAMIC CAPACITOR	CKDYF473Z50
C428		CERAMIC CAPACITOR	CKDYF473Z50

Mark	No.	Description	Part No.
C437		CERAMIC CAPACITOR	CKDYF103Z50
C438		MYLOR FILM CAPACITOR	CQMA562J50
C439		CERAMIC CAPACITOR	CKDYF103Z50
RESISTORS			
VR101		VR (100 Ω)	VRTB6VS101
VR102		VR (220 Ω)	ACP1038
VR103		VR (100 Ω)	ACP1037
VR104		VR (4.7K Ω)	ACP1042
VR201		VR (2.2k Ω)	VRTB6VS222
VR251, 252		VR (4.7K Ω)	ACP1042
VR253		VR (10K Ω)	ACP1043
VR254, 255		VR (47K Ω)	ACP1045
R226		CARBON FILM RESISTOR	RD1/2PMF101J
R388, 389		CARBONFILM RESISTOR	RD1/2PM271J
R385		CARBONFILM RESISTOR	RD1/2PM271J
R467, 478		CARBONFILM RESISTOR	RD1/2PM271J
R514, 515		METALFILM RESISTOR	RN1/4PC□□□□F
R522		CARBON FILM RESISTOR	RD1/4PM221J
R524		METALFILM RESISTOR	RN1/4PC4302F
R530, 535		METALFILM RESISTOR	RN1/4PC4702F
R560		CARBON FILM RESISTOR	RD1/4PM391J
R631		CARBON FILM RESISTOR	RD1/4PMFL3R9J
R632, 633		METAL OXIDE RESISTOR	RS2LMF□□□J
R635, 637		METAL OXIDE RESISTOR	RS1LMF010J
R638, 640		METAL OXIDE RESISTOR	RS1LMF010J
R641		CARBON FILM RESISTOR	RD1/2PMFLR7J
R671, 683		CARBON FILM RESISTOR	RD1/4PMFL□□□J
R685		METAL OXIDE RESISTOR	RS2LMF010J
R686		CARBON FILM RESISTOR	RD1/2PM151J
R689		CARBON FILM RESISTOR	RD1/4PMFL82J
R690		CARBONFILM RESISTOR	RD1/2PM471J
R694		CARBON FILM RESISTOR	RD1/4PMFLC2J
R699		METAL OXIDE RESISTOR	RS1LMF010J
R700		CARBON FILM RESISTOR	RD1/2PMFL03J
R702, 703		METAL OXIDE RESISTOR	RS1PMF470J
R704-706		RESISTOR(100K, 1/2W)	ACN1074
R708		METAL OXIDE RESISTOR	RS2LMF153J
R781		CARBON FILM RESISTOR	RD1/4PMFL3R2J
R782, 783		CARBONFILM RESISTOR	RD1/2PMFL□□□J
R784		METAL OXIDE RESISTOR	RS2LMF560J
R791, 792		CARBON FILM RESISTOR	RD1/4PMFL□□□J
R793		CARBON FILM RESISTOR	RD1/4PMFLR9J
R960, 961		RESISTOR ARRAY	RA8T103J
R962		RESISTOR ARRAY (10K)	RA4T103J
R963, 964		RESISTOR ARRAY	RA4T472J
		OTHER RESISTORS	RD1/8PM□□□J
OTHERS			
X101		CRYSTAL RESONATOR (3.579545MHz)	ASS-028
X102		CERAMIC RESONATOR	ASS1033
X301		CERAMIC RESONATOR (4.19MHz)	ASS1018
CN202-204		PLUG 6-P	AKM1072
DL111		DELAY LINE	ATN1013
DL115		DELAY LINE	ATN1014
		TV FRONT END	AXF1048

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	C152	CERAMIC CAPACITOR	CCDSL101J50		C251	ELECTR. CAPACITOR	CEAS010M50
	C153, 154	ELECTR. CAPACITOR	CEAS010M50		C252	CERAMIC CAPACITOR	CKDYF473Z50
	C155	TANTALUM CAPACITOR	ACH1131		C253	ELECTR. CAPACITOR	CEAS100M50
	C156	ELECTR. CAPACITOR	CEAS330M16		C254	MYLOR FILM CAPACITOR	CQMA471J50
	C157	MYLOR FILM CAPACITOR	CQMA123J50		C255	CERAMIC CAPACITOR	CCDSL101K500
	C158	CERAMIC CAPACITOR	CCDSL221J50		C256	ELECTROLYTIC CAPACIT	CEHAQ100M2C
	C159	ELECTR. CAPACITOR	CEAS330M16		C257	ELECTR. CAPACITOR	CEAS010M100
	C160	ELECTR. CAPACITOR	CEAS010M50		C258	ELECTROLYTIC CAPACIT	CEHAQ330M16
	C161	CERAMIC CAPACITOR	CKDYF473Z50		C259	CERAMIC CAPACITOR	CKDYB102K500
	C162	ELECTR. CAPACITOR	CEAS330M16		C260	CERAMIC CAPACITOR	CCDSL101K500
	C163	ELECTR. CAPACITOR	CEAS470M16		C261	ELECTR. CAPACITOR	CEHAQ010M50
	C164	ELECTR. CAPACITOR	CEASR47M50		C262	ELE. CAP. (1/160V)	ACH-372
	C165	CERAMIC CAPACITOR	CKDYF103Z50		C263	CER. CAP. (680P/2KV)	ACG1024
	C166	MYLOR FILM CAPACITOR	CQMA333J50		C264, 265	CAPACITOR	CQPA333J200
	C167	CERAMIC CAPACITOR	CKDYF473Z50		C266	CAPACITOR	CFPHW123H3D
	C168	ELECTR. CAPACITOR	CEANP010M50		C267	MPP CAPACITOR (0.82 μ /200V)	ACE1044
	C169	ELECTR. CAPACITOR	CEAS100M50		C268	CERAMIC CAPACITOR	CCDSL181J50
	C170	ELECTR. CAPACITOR	CEAS2R2M50		C269	M. P. P. CAPACITOR	CFPHW103H3A
	C171	CERAMIC CAPACITOR	CKDYF473Z50		C270	CERAMIC CAPACITOR	CKDYF473Z50
	C172	ELECTR. CAPACITOR (0.82 μ /50V)	ACH-388		C271	ELECTR. CAPACITOR	CEHAQ010M50
	C173	ELECTR. CAPACITOR	CEAS471M10		C272	CERAMIC CAPACITOR	CCDSL101J50
	C174	CERAMIC CAPACITOR	CKDYF473Z50		C273	CERAMIC CAPACITOR	CKDYF103Z50
	C175	CERAMIC CAPACITOR	CCCCH100D50		C274	CERAMIC CAPACITOR	CKDYF473Z50
	C176	MYLOR FILM CAPACITOR	CQMA223J50		C301-304	CERAMIC CAPACITOR	CCDSL101J50
	C177	ELECTR. CAPACITOR	CEHAQ100M50		C305	CERAMIC CAPACITOR	CKDYB102K50
	C178	CERAMIC CAPACITOR	CCDCH221J50		C307	ELECTR. CAPACITOR	CEAS102M16
	C179-181	ELECTR. CAPACITOR	CEAS010M50		C308	CERAMIC CAPACITOR	CKDYF103Z50
	C182	ELECTR. CAPACITOR	CEAS331M16		C309	ELECTR. CAPACITOR	CEAS47M50
	C183, 184	ELECTROLYTIC CAPACIT	CEHAQ222M16		C310	CERAMIC CAPACITOR	CKDYB102K50
	C185, 186	ELECTR. CAPACITOR	CEAS101M16		C311	CERAMIC CAPACITOR	CCDSH470J50
	C187	CERAMIC CAPACITOR	CCDSL101J50		C312, 315	CERAMIC CAPACITOR	CCDCH040C50
	C188	CERAMIC CAPACITOR	CKDYF473Z50		C317	ELECTR. CAPACITOR	CEAS47M50
	C189	ELECTR. CAPACITOR	CEAS010M50		C318	CERAMIC CAPACITOR	CKDYB102K50
	C194	ELECTR. CAPACITOR	CEANP010M50		C319	CERAMIC CAPACITOR	CKDYF103Z50
	C195	ELECTR. CAPACITOR	CEANP47M35		C320	CERAMIC CAPACITOR	CKDYB102K50
	C196	CERAMIC CAPACITOR	CCCSL180J50		C321	ELECTR. CAPACITOR	CEAS101M16
	C198, 199	ELECTR. CAPACITOR	CEANP010M50		C322	CERAMIC CAPACITOR	CKDYB102K50
	C200, 201	ELECTR. CAPACITOR	CEAS100M50		C323	ELECTR. CAPACITOR	CEAS470M16
	C202, 203	CERAMIC CAPACITOR	CKCYB391K50		C324	ELECTR. CAPACITOR	CEAS2R2M50
	C204	CERAMIC CAPACITOR	CCDSL221J50		C325	CERAMIC CAPACITOR	CKDYF103Z50
	C205	CERAMIC CAPACITOR	CKCYB331K50		C326	ELECTR. CAPACITOR	CEAS47M50
	C207	CERAMIC CAPACITOR	CCCSL121J50		C327	ELECTR. CAPACITOR	CEASR47M50
	C211	ELECTR. CAPACITOR	CEAS330M16		C328	CERAMIC CAPACITOR	CKCYB561K50
	C212	ELECTR. CAPACITOR	CEAS101M16		C329	MYLOR FILM CAPACITOR	CQMA562J50
	C213	CERAMIC CAPACITOR	CCDSL101J50		C330	ELECTR. CAPACITOR	CEAS101M10
	C214	ELECTR. CAPACITOR	CEAS101M10		C331	MYLOR FILM CAPACITOR	CQMA123J50
	C215	CERAMIC CAPACITOR	CCDCH390J50		C332	CERAMIC CAPACITOR	CKDYF103Z50
	C216	CERAMIC CAPACITOR	CCCSL680J50		C333	CERAMIC CAPACITOR	CCDCH820J50
	C217	ELECTR. CAPACITOR	CEAS330M16		C334	CERAMIC CAPACITOR	CCDRH560J50
	C218	CERAMIC CAPACITOR	CKDYF103Z50		C335	ELECTR. CAPACITOR	CEAS47M50
	C219	ELECTR. CAPACITOR	CEAS101M16		C336	CERAMIC CAPACITOR	CCMCH150J50
	C220	CERAMIC CAPACITOR	CCDSL271J50		C337	ELECTR. CAPACITOR	CEAS2R2M50
	C221	CERAMIC CAPACITOR	CCCSL271J50		C338	CERAMIC CAPACITOR	CKDYF103Z50
	C222	ELECTR. CAPACITOR	CEAS330M16		C339	ELECTR. CAPACITOR	CEANP222M50
	C240	ELECTR. CAPACITOR	CEANP010M50		C340	ELECTR. CAPACITOR	CEAS101M10

9.5.2 CONVERGENCE POSITION CONTROL

The convergence position control of this model is performed by using keys on the remote control unit or by using the main unit. Flows of the screen displays and key operations are generalized in Fig. 9-3. For details, refer to the description of the convergence adjustment in the operating instructions. When FACTORY ADJ mode is once activated and deactivated, the convergence position is set to the center of its variable range (the position is reset).

• Description of Fig. 9-3

In ⑥ through ⑩, a test cross is displayed. The cross is used for simple convergence position adjustment and some other adjustments for which the test cross is required.

In ① through ⑤, the input signal is displayed as-is, which can be used for the convergence position adjustment by supplying a cross hatch signal.

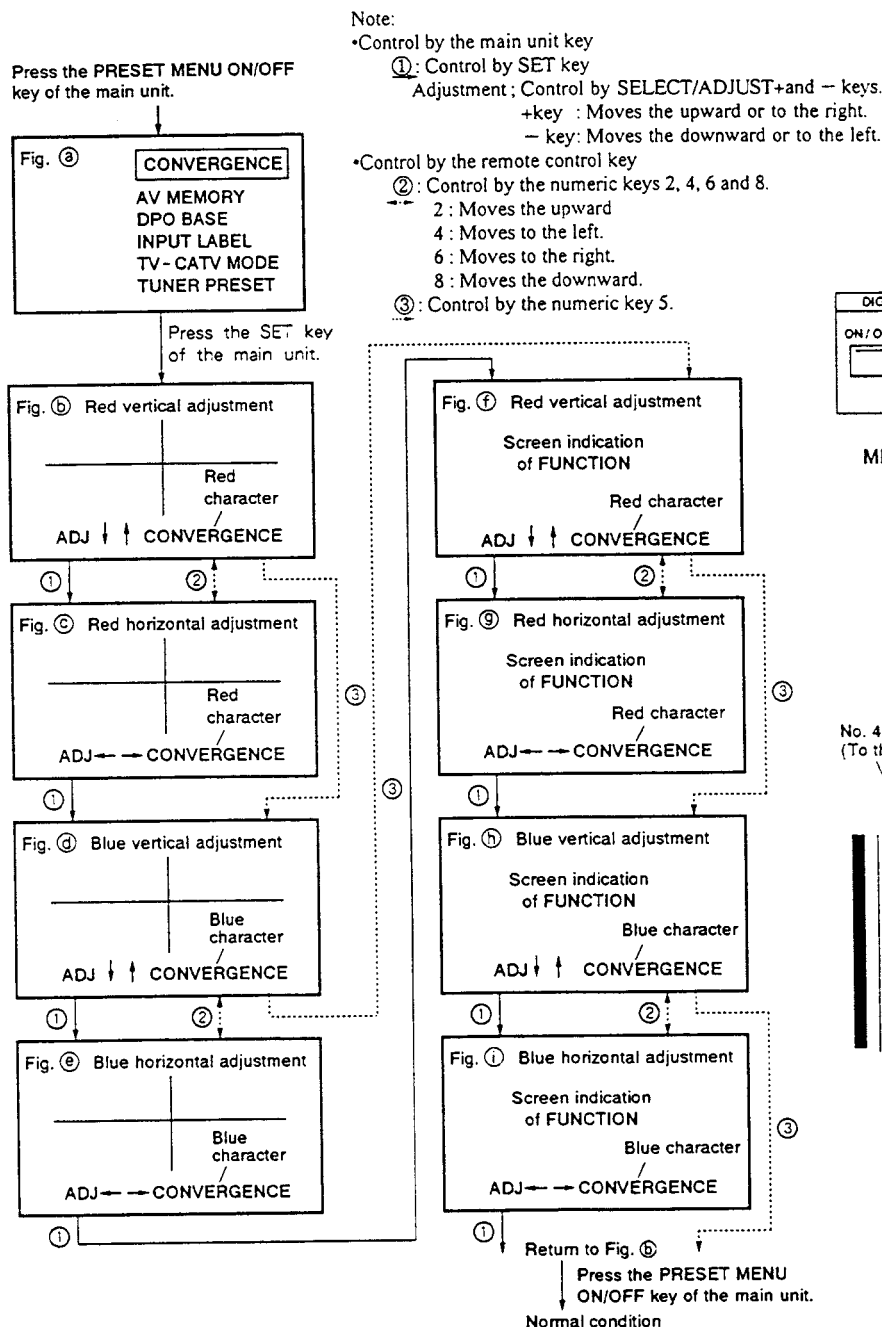


Fig. 9-3-3 Screen movement

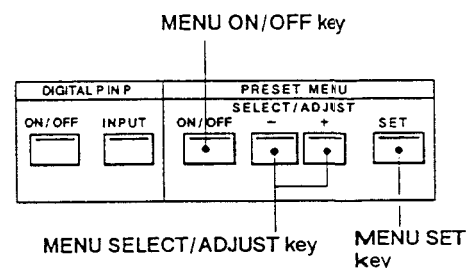


Fig. 9-3-1
Key disposition of the main unit

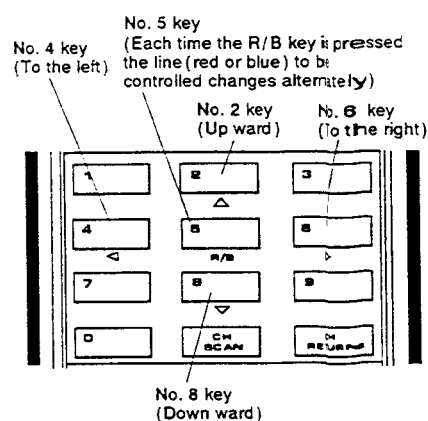


Fig. 9-3-2
Key disposition of the remote control

9.5.3 CONVERGENCE ADJUSTMENT

- Picture movement and adjustment points are summarized in Fig. 9-4 and 9-5.
- Input signal is the cross-hatch signal.
- Convergence adjustment outline is referred to the service manual SD-P401/KUX1C(ARP1455), and SD-P40/KU (ARP-977-0), except for H-S-PIN and H-S-LIN adjustments.
- After performed all adjustment, release the short-circuit to obtain white screen and perform the pre-adjustment.
- Correct the vertical line by horizontal correcting signal and correct the horizontal line by vertical correcting signal.
- Adjustment points are located in the CONVERGENCE assembly.

(1) GREEN LINE ADJUSTMENT

- Since the green lines are used as a reference when adjusting red and blue, make sure it is adjusted accurately.
- Short-circuit TP-47R(P120), TP-47B(P121) and TP+12V(P118) in the VIDEO • DEFLECTION assembly, then green lines appear in the screen. Release the short-circuit after green line adjustment.

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	GH-PIN	VR603 (C)	Adjust the green line to a straight line (refer to Fig. 9-4 and 9-5).
2	GH-KEY	VR604 (C)	
3	GV-BOW	VR605 (C)	
4	GV-KEY	VR606 (C)	
5	GV-S-KEY	VR607 (C)	
6	GV-PIN	VR608 (C)	
7	Repeat steps 1 thru 6 until the best possible picture is obtained.		

(2) RED LINE ADJUSTMENT

- Short-circuit TP-47B (P121) and TP+12V (P118), then green lines and red lines appear in the screen. Release the short-circuit after red line adjustment.
- Adjust each VR so that the red lines converge with the green lines to obtain yellow lines.
- After adjustment, perform fine-adjustment by observing the overall screen.

● Red Horizontal Distortion Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	RH-SKEW	VR609 (C)	Adjust the red vertical lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-4.)
2	RH-BOW	VR610 (C)	
3	Repeat steps 1 and 2.		
4	RH-KEY	VR611 (C)	Adjust the red vertical lines in the right and left section of the screen to straight lines without lean. (Refer to Fig. 9-4.)
5	RH-S-KEY	VR612 (C)	
6	Repeat steps 4 and 5.		
7	RH-PIN	VR613 (C)	Adjust the red vertical lines in the right and left sections of the screen to straight lines without distortion. (Refer to Fig. 9-4.)
8	RH-S-PIN	VR614 (C)	
9	Repeat steps 7 and 8 or steps 1 thru 8.		

● Red Horizontal Interval Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	RH-POSITION	Refer to section 9.5.2	Adjust so that the red vertical lines converge with the green vertical lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.)
2	RH-LIN	VR615 (C)	Adjust so that the red vertical lines converge with the green vertical lines in the right and left sections of the screen to obtain yellow lines. (Refer to Fig. 9-4)
3	RH-S-LIN	VR616 (C)	
4	RH-SIZE	VR617 (C)	
5	Repeat steps 1 thru 4.		

● Red Vertical Distortion Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	RV-SKEW	VR618 (C)	Adjust the red horizontal lines in the center of the screen to straight lines without distortion and lean. (Refer to Fig. 9-5.)
2	RV-BOW	VR619 (C)	
3	Repeat steps 1 and 2.		
4	RV-KEY	VR620 (C)	Adjust the red horizontal lines in the lower and upper sections of the screen to straight lines without lean. (Refer to Fig. 9-5.)
5	RV-S-KEY	VR621 (C)	
6	RV-PIN	VR622 (C)	
7	Repeat steps 4 thru 6 or steps 1 thru 6.		

● Red Vertical Interval Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	RV-LIN	VR623 (C)	Adjust so that the red horizontal lines converge with the green horizontal lines in the center of the screen to obtain yellow lines. (This serves as the reference setting, but if the lines diverge during the adjustment, proceed with the adjustment after considering this divergence.) (Refer to Fig. 9-5.)
2	RV-POSITION	Refer to section 9.5.2	
3	RV-SIZE	VR624 (C)	Adjust so that the red horizontal lines converge with the green horizontal lines in the lower and upper sections of the screen to obtain yellow lines. (Refer to Fig. 9-5.)
4	Repeat steps 1 thru 3.		

(3) BLUE LINE ADJUSTMENT

- Short-circuit TP-47R (P120) and TP+12V (P118), then green lines and blue lines appear in the screen. Release the short-circuit after blue line adjustment.
- Adjust each VR so that the blue lines converge with the green lines to obtain cyan lines.
- After adjustment, perform fine-adjustment by observing the overall screen.

● Blue Horizontal Distortion Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	BH-SKEW	VR625 (C)	Observe the blue vertical lines in the screen, and adjust in the same way as the red horizontal distortion compensation adjustment.
2	BH-BOW	VR626 (C)	
3	BH-KEY	VR627 (C)	
4	BH-S-KEY	VR628 (C)	
5	BH-PIN	VR629 (C)	
6	BH-S-PIN	VR630 (C)	

● Blue Horizontal Interval Compensation Adjustment

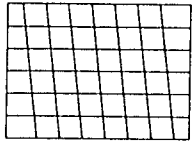
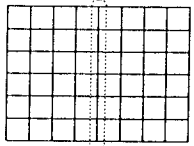
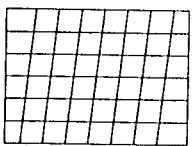
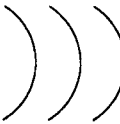
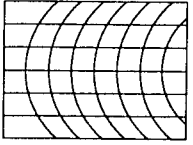
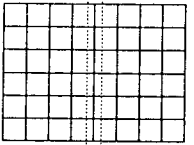
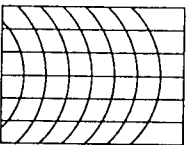
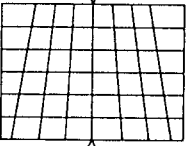
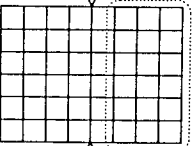
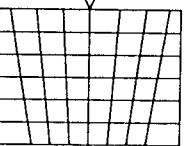
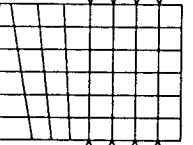
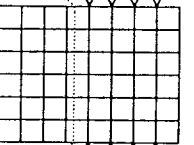
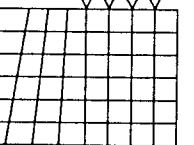
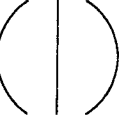
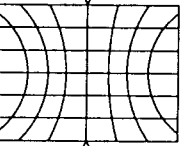
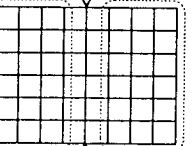
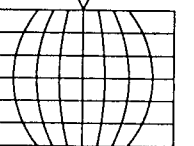
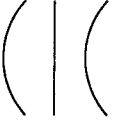
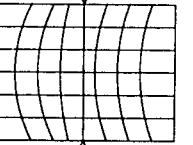
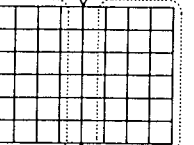
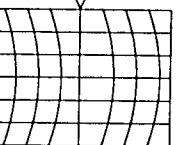
Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	B-H-POSITION	Refer to section 9.5.2	Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red horizontal interval compensation adjustment.
2	BH-LIN	VR631 (C)	
3	BH-S-LIN	VR632 (C)	
4	BH-SIZE	VR633 (C)	

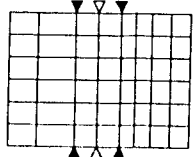
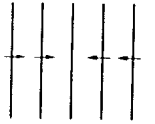
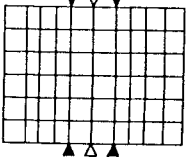
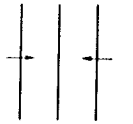
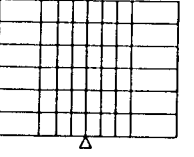
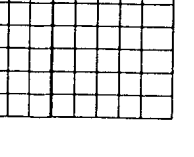
● Blue Vertical Distortion Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	BV-SKEW	VR634 (C)	Observe the blue horizontal lines in the screen, and adjust in the same way as the red vertical distortion compensation adjustment.
2	BV-BOW	VR635 (C)	
3	BV-KEY	VR636 (C)	
4	BV-S-KEY	VR637 (C)	
5	BV-PIN	VR638 (C)	

● Blue Vertical Interval Compensation Adjustment

Step No.	Adjustment Item	Adjustment Point	Adjustment Procedure
1	BV-LIN	VR639 (C)	Adjust so that the blue lines converge with the green lines to obtain cyan lines in the same way as the red vertical interval compensation adjustment.
2	BV-POSITION	Refer to section 9.5.2	
3	BV-SIZE	VR640 (C)	

Compensation	Signal and Mark *1	Distorted Screen	Corrected Screen	Distorted Screen	Adjustment Point	
Horizontal Distortion Compensation	H - SKEW 				Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean.	To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW.
	H - BOW 				Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines.	
	H - KEY 				Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean.	To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY.
	H - S - KEY 				Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean.	
	H - PIN 				Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN.	To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN.
	H - S - PIN 					

Compensation	Signal and Mark *1	Distorted Screen
Horizontal Interval Compensation	H - LIN 	
	H - S - LIN 	
	H - SIZE 	
	H - POSITION 	

Note: KEY is short for KEYSTONE and LIN for LINEARITY
 ▽ denotes points which do
 ▼ denotes points which have
 *1: Sketch is printed on the p.c. bo

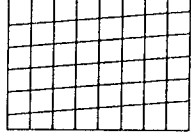
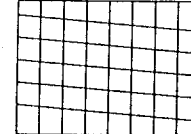
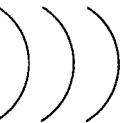
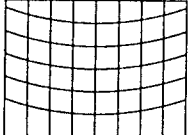
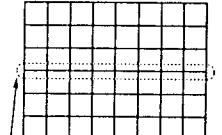
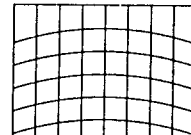
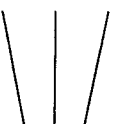
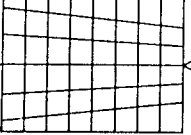
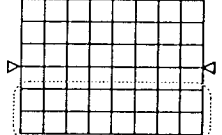
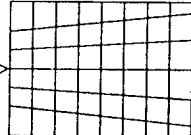
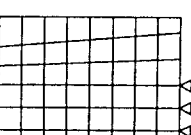
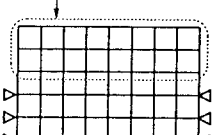
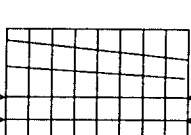
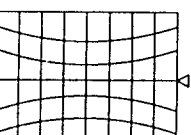
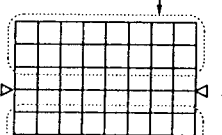
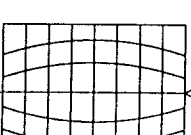
Fig. 9-4 Horizontal compensation

Adjustment Point	
Observe the vertical lines in the center of the screen (where there is no H-KEY, H-S-KEY, H-PIN nor H-S-PIN movement), then adjust the vertical lines to eliminate lean.	To obtain the best possible lines, adjust the vertical lines in the center of the screen following the adjustment procedure of H-SKEW and H-BOW.
Observe the vertical lines in the center of the screen, then adjust the bowed lines to straight lines.	
Observe the vertical lines in the right section of the screen (where there is no H-S-KEY movement), then adjust the vertical lines to eliminate lean.	To eliminate lean, adjust the vertical lines in the right and left sections of the screen following the adjustment procedure of H-KEY and H-S-KEY.
Observe the vertical lines in the left section of the screen, then adjust the vertical lines to eliminate lean.	
Observe the vertical lines in the right and left sections of the screen, then adjust the bowed lines to symmetrize the right and left by H-S-PIN. And adjust the bowed vertical lines in the right and left sections of the screen to straight lines by H-PIN.	To eliminate distortion, straighten the vertical lines in the right and left sections of the screen following the adjustment procedure of H-PIN and H-S-PIN.

Compensation	Signal and Mark *1	Distorted Screen	Corrected Screen	Distorted Screen	Adjustment Point	
Horizontal Interval Compensation	H - LIN				Adjust following the adjustment procedure of H-LIN and H-S-LIN (remember the degree of H-SIZE movement) so that the interval between vertical lines on the right section is the same as on the left section, with a central point which does not move. For example, when the vertical lines in the right section of the screen are moved to right direction, move the vertical lines in the left section of the screen as same degree as the gap in the right section to the left direction.	The vertical lines in the center of the screen converge into the green lines by H-POSITION. And also, the vertical lines in the right and left sections of the screen converge into the green lines by H-LIN, H-S-LIN and H-SIZE.
	H - S - LIN					
	H - SIZE				Converge the vertical lines in the right and left sections of the screen to green lines.	
	H - POSITION				The vertical lines of the screen move parallel on the right and left by the convergence control of the remote control or main unit. When the vertical line moves at will, consider the degree of movement.	

Note: KEY is short for KEYSTONE, and LIN for LINEARITY
▽:denotes points which do not move
▼:denotes points which hardly move
*1:Sketch is printed on the p.c. board.

Fig. 9-4 Horizontal compensation

Compensation	Signal and Mark *1	Distorted Screen	Corrected Screen	Distorted Screen	Adjustment Point	
Vertical Distortion Compensation	V - SKEW 				Observe the horizontal lines in the center of the screen (where there is no V-KEY, V-S-KEY nor V-PIN movement), then adjust the horizontal lines to eliminate lean.	To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW.
	V - BOW 				Observe the horizontal lines in the center of the screen, then adjust the bowed lines to straight lines.	
	V - KEY 				Observe the horizontal lines in the lower section of the screen (where there is no V-S-KEY movement), then adjust the horizontal lines to eliminate lean.	
	V - S - KEY 				Observe the horizontal lines in the upper section of the screen, then adjust the horizontal lines to eliminate lean.	
	V - PIN 				Observe the horizontal lines in the upper and lower sections of the screen, then adjust the bowed lines to straight lines.	

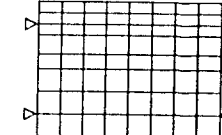
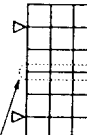
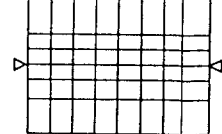
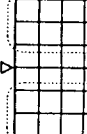
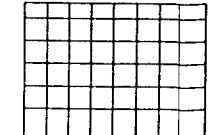
Compensation	Signal and Mark *1	Distorted Screen	Corrected Screen
Vertical Interval Compensation	* 2 V - LIN 		
	V - S - LIN		No a
	V - SIZE 		
	V - POSITION		
			Center of th

Fig. 9-5 Vertical compensation

Adjustment Point	
Horizontal lines in the center of the screen (where there is no V-S-KEY nor V-PIN), then adjust the horizontal lines to be straight.	To obtain the best possible lines, adjust the horizontal lines in the center of the screen following the adjustment procedure of V-SKEW and V-BOW.
Horizontal lines in the center of the screen, then adjust the lines to be straight.	
Horizontal lines in the upper and lower sections of the screen (where there is V-S-KEY movement), then adjust the horizontal lines to be straight.	To eliminate lean, adjust the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-KEY and V-S-KEY.
Horizontal lines in the upper and lower sections of the screen, then adjust the horizontal lines to be straight.	
Horizontal lines in the upper and lower sections of the screen, then adjust the bowed lines to be straight.	To eliminate distortion, straighten the horizontal lines in the upper and lower sections of the screen following the adjustment procedure of V-PIN.

Compensation	Signal and Mark *1	Distorted Screen	Corrected Screen	Distorted Screen	Adjustment Point	
Vertical Interval Compensation	* 2 V - LIN 				Converge the horizontal lines in the center of the screen into green lines. At this time, be sure to the same horizontal line interval as upper section as lower section about a central point. However, if the same interval is not to obtained, adjust POSITION and adjust V-LIN again.	The horizontal lines in the center of the screen converge into the green line by V-LIN and V-POSITION. And also the horizontal lines in the upper and lower sections of the screen converge into the green line by V-SIZE.
	V - S - LIN	No adjustment				
	V - SIZE 				Converge the horizontal lines in the upper and lower sections of the screen into green lines.	
	V - POSITION				The horizontal lines of the screen move parallel on the upper and lower by the convergence control of the remote control or main unit. When the horizontal line moves at will, consider the degree of movement.	

Note: KEY is short for KEYSTONE, and LIN for LINEARITY.
▽:denotes points which do not move.
*1:Sketch is printed on the P.C. board.
*2:The movement of V-LIN is the same as the SD-P40/KU.

Fig. 9-5 Vertical compensation

9.12 WHEN CRT ASSEMBLY R, G, OR B IS REPLACED

- The CRT assembly R, G, B replacement procedure is described in Section "10. Replacing the CRT assembly".
- When one or two tubes are replaced, match the new tubes with the remaining tube. If all three tubes are replaced, first adjust G, and then match the other two tubes with the G tube.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	Deflection yoke angle and centering adjustment	Cross signal (or apply any signal, and generate a test cross signal as described in section 9.5.2.)	Centering magnet of deflection yoke of replaced CRT assembly (Refer to Fig. 9-8)	Adjust the deflection yoke angle until the color cross of the replaced CRT assembly is parallel with the color cross of a CRT assembly which has not been replaced.
				Reset the convergence position (once activate and deactivate FACTORY ADJ mode) when the replaced CRT assembly is red or blue.
				Adjust the centering magnet of the deflection yoke in the replaced CRT assembly until cross becomes converge.
2	Focus adjustment	Cross hatch	Replaced color focus VR (VR1) and lens assembly connected to replaced CRT assembly (Refer to Fig. 9-9 and Fig. 9-10.)	Adjust the focus of the replaced CRT assembly to optimum condition. (Shifting the convergence position may provide easier observation. Be sure to return it to the original position after the adjustment is completed.)
3	Convergence adjustment		Match the color convergence of the replaced CRT assembly with the color of an assembly which has not been replaced. See Section 9.5.3 CONVERGENCE ADJUSTMENT for details on the matching procedure. (When CRT assembly G is replaced, match the color convergence of the R, G and B.)	
4	White balance	Color bar signal without color signal	Screen VR(VR1) VR102 (R) } Drive VR(V) VR103 (B) }	Set the picture quality to standard by remote control.
				Adjust the replaced color screen VR until grey can be seen in the color of dark area.
				Adjust the replaced color drive VR until the color of bright area becomes white. (When CRT assembly G is replaced, slightly adjust the drive VR {R} and {B}.)
				Adjust the PIONEER Standard Brightness only when the above adjustments have not been successfully effectuated due to the abnormal brightness.
5	PIONEER standard settings	Adjust as described in steps 2 thru 10 in Section 9.4.2. Also make the VNR settings according to 9.4.2 when required.		

9.13 WHEN LENS ASSEMBLY IS REPLACED

- Remove the lenticular sheet, and attach tracing paper with a plastic tape, etc. instead. (Refer to Fig. 9-9.) Adjust the focus of the lens assembly newly mounted, by observing the picture shown on the tracing paper.

9.14 WHEN OTHER ASSEMBLIES ARE REPAIRED OR REPLACED

- No adjustment required.

9.6 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPAIRED

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	Comb filter adjustment	Color bar	VR571(A) L575(A)	Adjust TP-01(P571) 3.58MHz component to minimum level.

9.7 WHEN AV I/O-3P•Y/C SEP ASSEMBLY IS REPLACED

- No adjustment required.

9.8 WHEN PINP ASSEMBLY IS REPAIRED OR REPLACED

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	TINT adjustment of Sub-picture	Color bar (Main and Sub-picture)	VR701 (P)	TINT of the Sub-picture ought not to shift. If it is shifted, adjust as follows. Set to P in P picture on the screen, and adjust the TINT of the Sub-picture so that it becomes the same as that of the Main-picture.

9.9 WHEN FRONT CONTROL ASSEMBLY IS REPAIRED

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	DPO sensitivity adjustment	Adjust DPO sensitivity adjustment as described in section 9.16.		

9.10 WHEN FRONT CONTROL ASSEMBLY IS REPLACED

- No adjustment required.

9.11 WHEN R, G, OR B CRT DRIVE ASSEMBLY IS REPAIRED OR REPLACED

- White balance ought to be obtained best picture.
If not, adjust the white balance as follows.

Step No.	Adjustment Item	Input Signal	Adjustment Point	Adjustment Procedure
1	White balance adjustment	Ordinary broadcasting	Screen (VR1) (R) (B)	Adjust the white if proper adjustment cannot be achieved as follows. Set the COLOR by the remote control to minimum, adjust the screen VRs to obtain best picture.

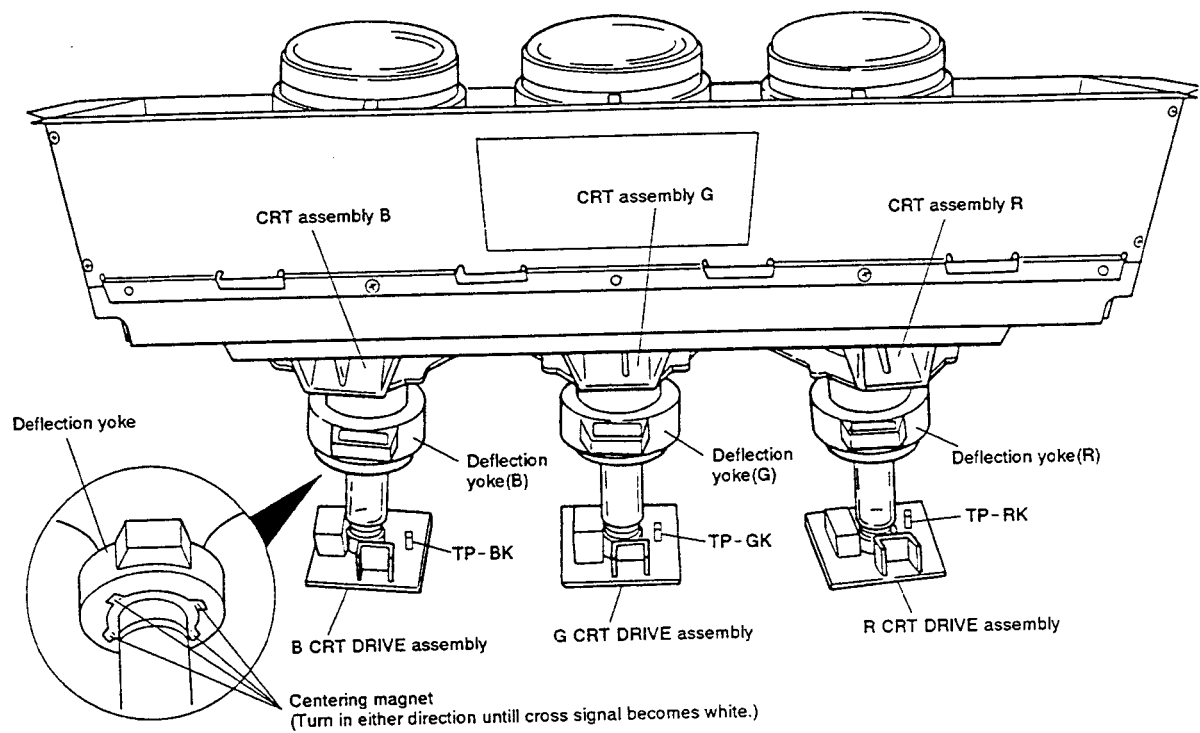


Fig. 9-8 Adjustment point (1)

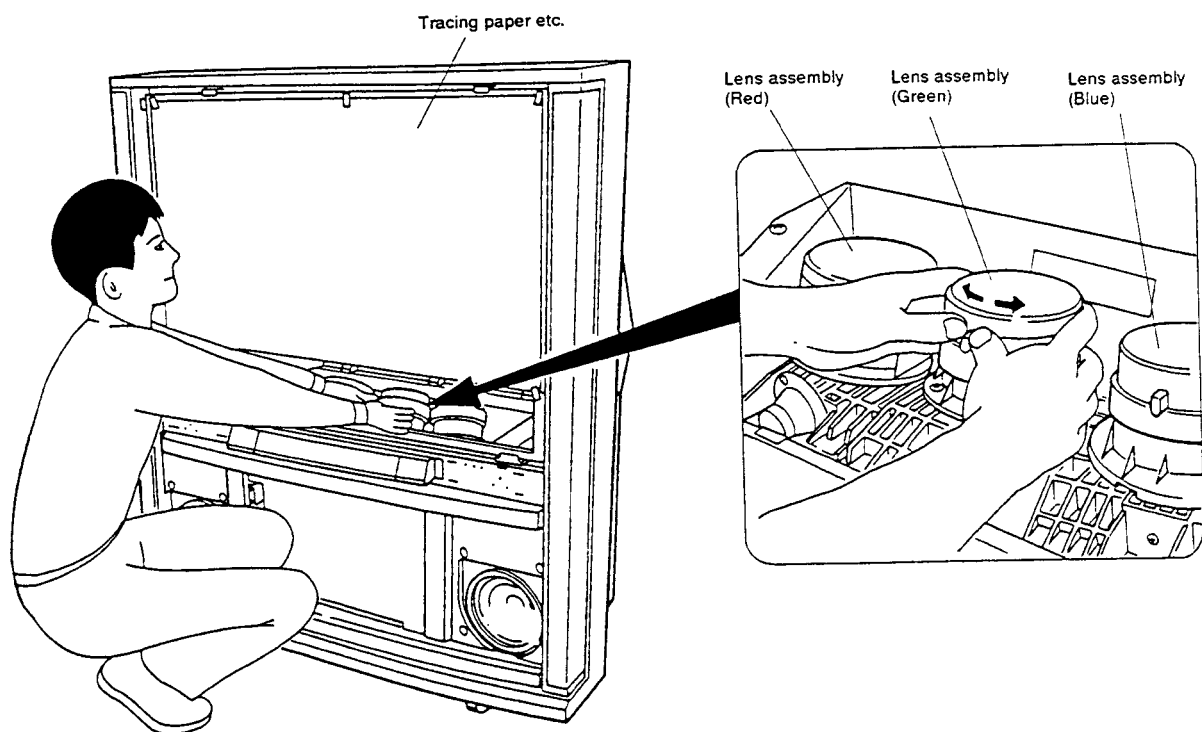


Fig. 9-9 Adjustment point (2)

9.15 DPO BASE SETTING

The DPO function features a DPO light-sensitive section in the front control panel designed to judge the level of external light when the front panel DPO switch (S559) is ON, thereby matching the PROJECTION MONITOR RECEIVER picture quality (contrast, color, bright) with the external light.

There are two STANDARD kinds of DPO picture qualities. When the environment is bright, the first DPO quality (DPO LIGHT) is selected. When the environment is dark, the second DPO quality (DPO DARK) is selected. The data on these two DPO qualities are stored in IC302 (non-volatile memory).

Hence, if IC302 (or peripheral circuits) is repaired or replaced, or if VIDEO•DEFLECTION assembly is replaced, picture quality must be stored in IC302 again.

To store the DPO picture quality data, refer to the operating instructions. The values set at the factory are shown here for reference. These values are subject to change.

- DPO LIGHT
 - COLOR:0
 - CONTR:0
 - BRITE:0
- DPO DARK
 - COLOR: - 2
 - CONTR: - 12
 - BRITE:+3

Note: For this adjustment, it is not necessary to activate FACTORY ADJ mode.

9.16 DPO SENSITIVITY ADJUSTMENT

The sensitivity of the DPO light-sensitive section is adjusted to determine the level of external light at which the DPO feature is activated. This adjustment is made by VR551 in the FRONT CONTROL assembly (refer to Fig. 9-10), and should be carried out according to the customer's preferences. The adjustment procedure used at the factory is given for reference.

- (1) Using an incandescent light bulb as the light source, light is beamed directly into the DPO light sensitive section with a light - intensity level of 50 lux at the DPO.
- (2) Switch the DPO switch (S559) on. "DPO ON" indicate in the screen.
- (3) FRONT CONTROL assembly VR551 is adjusted to obtain a voltage of 4.7V ($\pm 0.2V$) at the Q551 emitter.

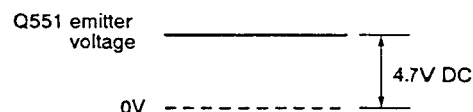


Fig. 9-6 DPO sensitivity adjustment

9.17 ANODE CABLE CONNECTION AND DISCONNECTION

SERVICEMAN WARNING

Before removing the anode cable, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

Disconnect the FBT anode cable as outlined in Fig. 9-7. Confirm the extension of the rubber cover before disconnecting the cable, then it is easy to connect the anode cable after the anode voltage is measured.

When connecting the anode cable, proceed in the reverse order as mentioned above. Confirm that the cable will not come off by pulling it after the cable is connected.

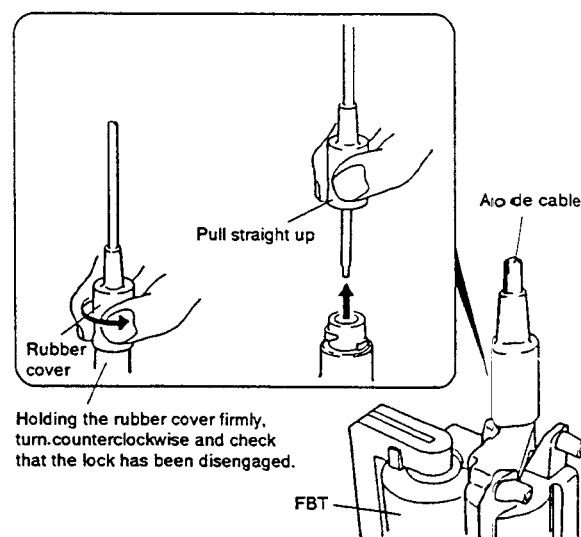


Fig. 9-7 Disconnecting the anode cable

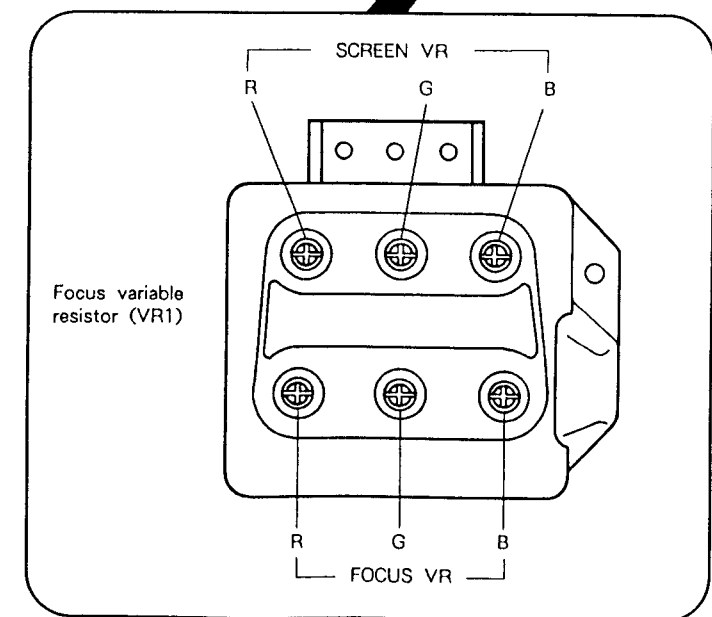
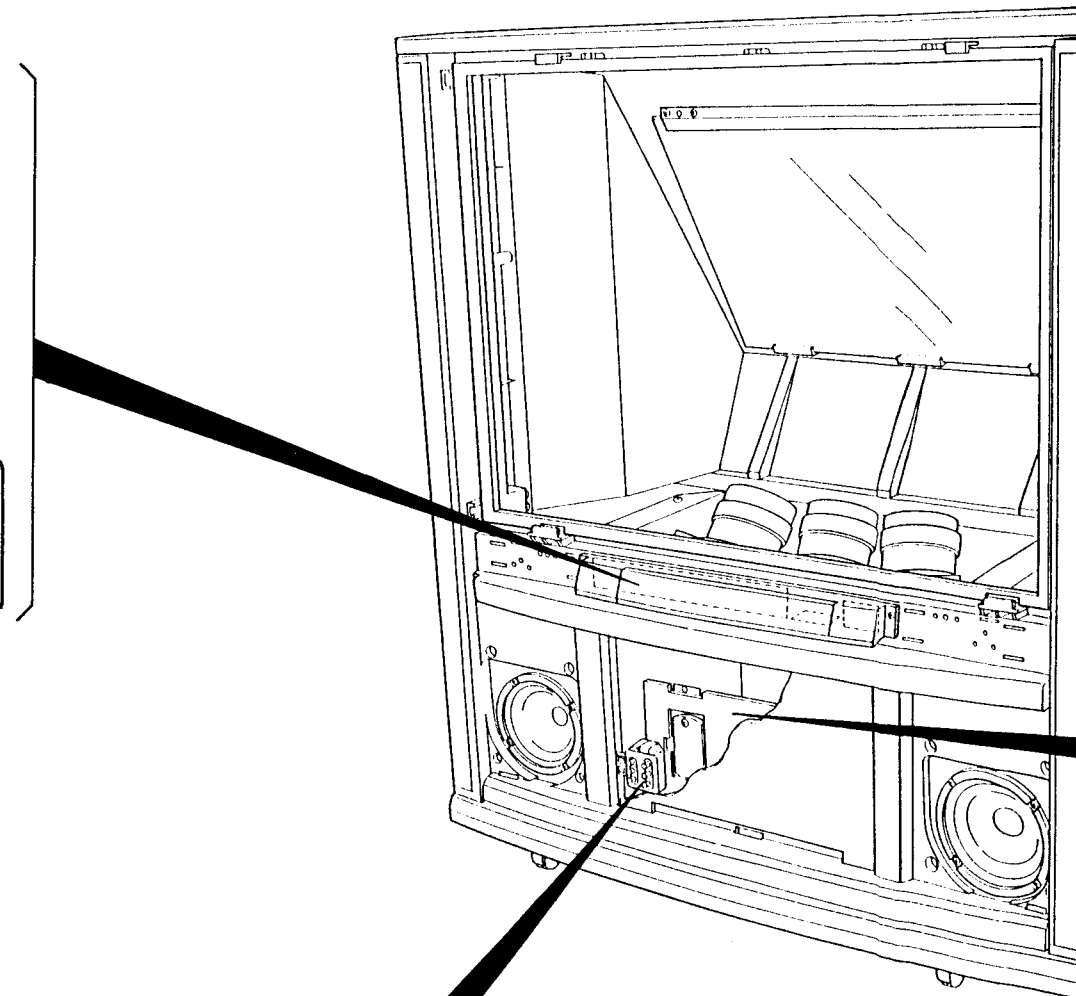
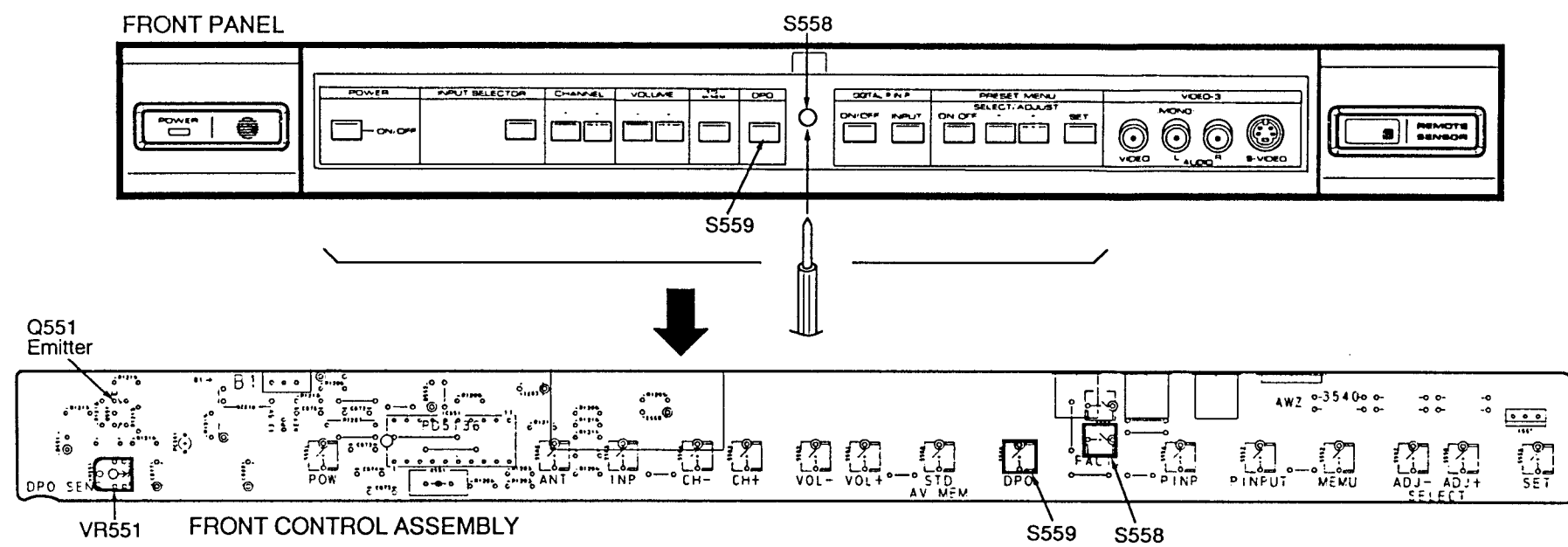
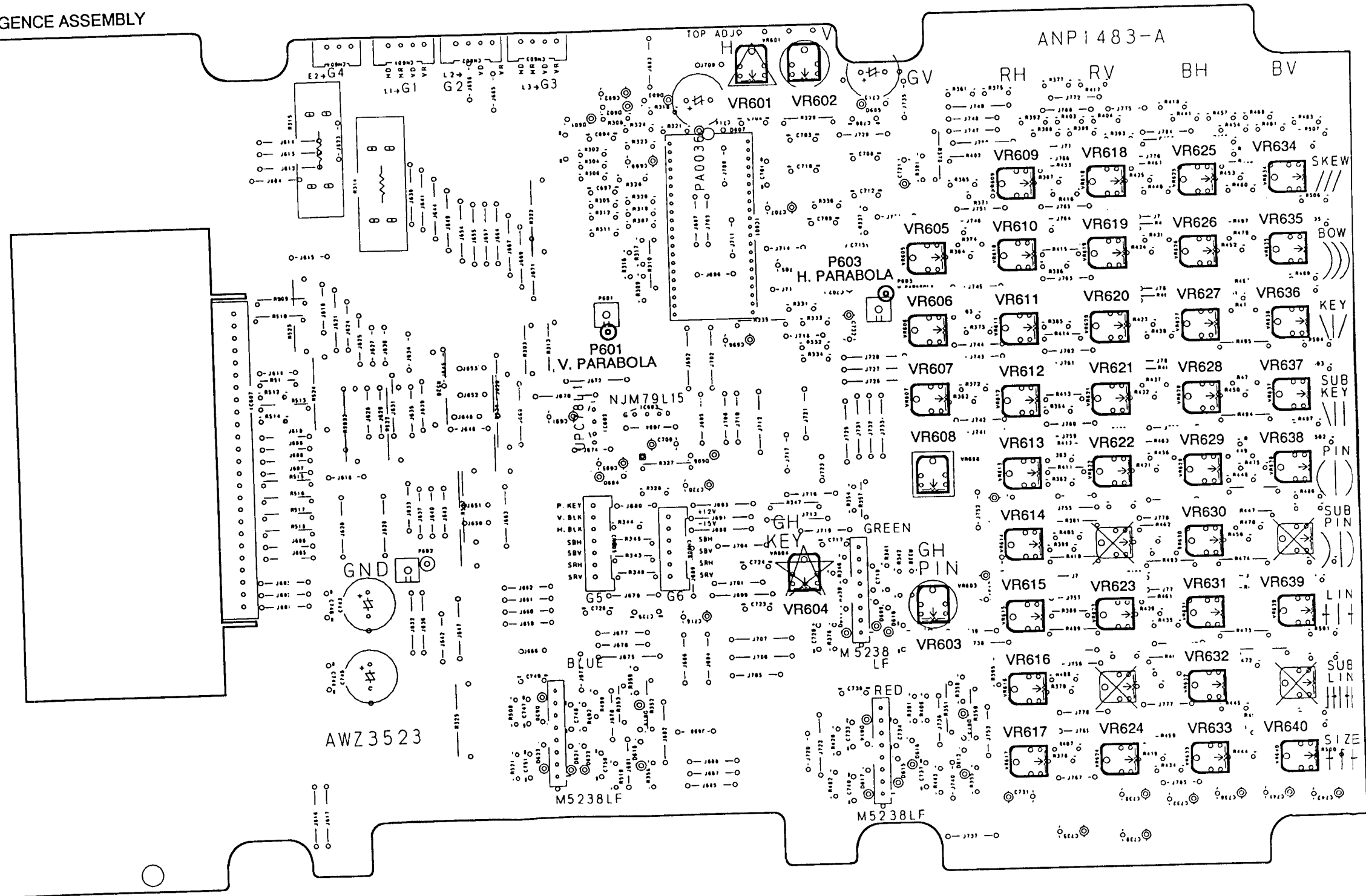


Fig. 9-10 Adjustment point (3)



CONVERGENCE ASSEMBLY



VIDEO • DEFLECTION ASSEMBLY

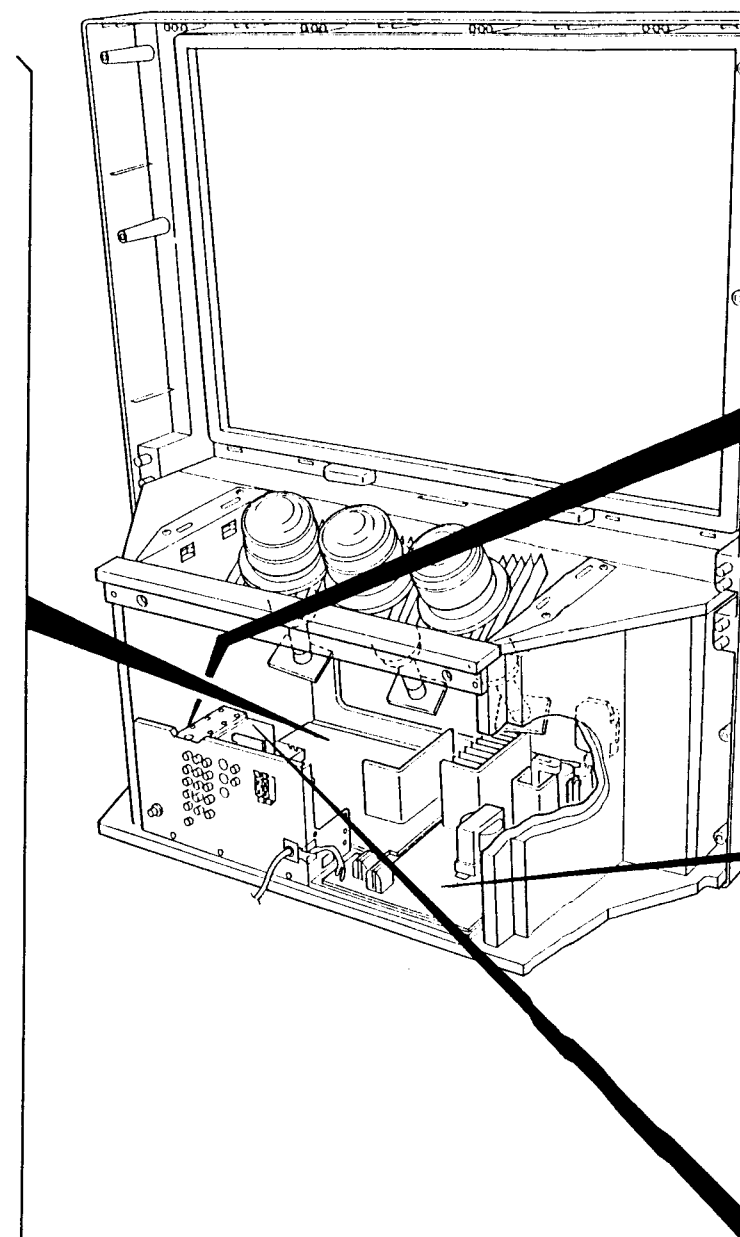
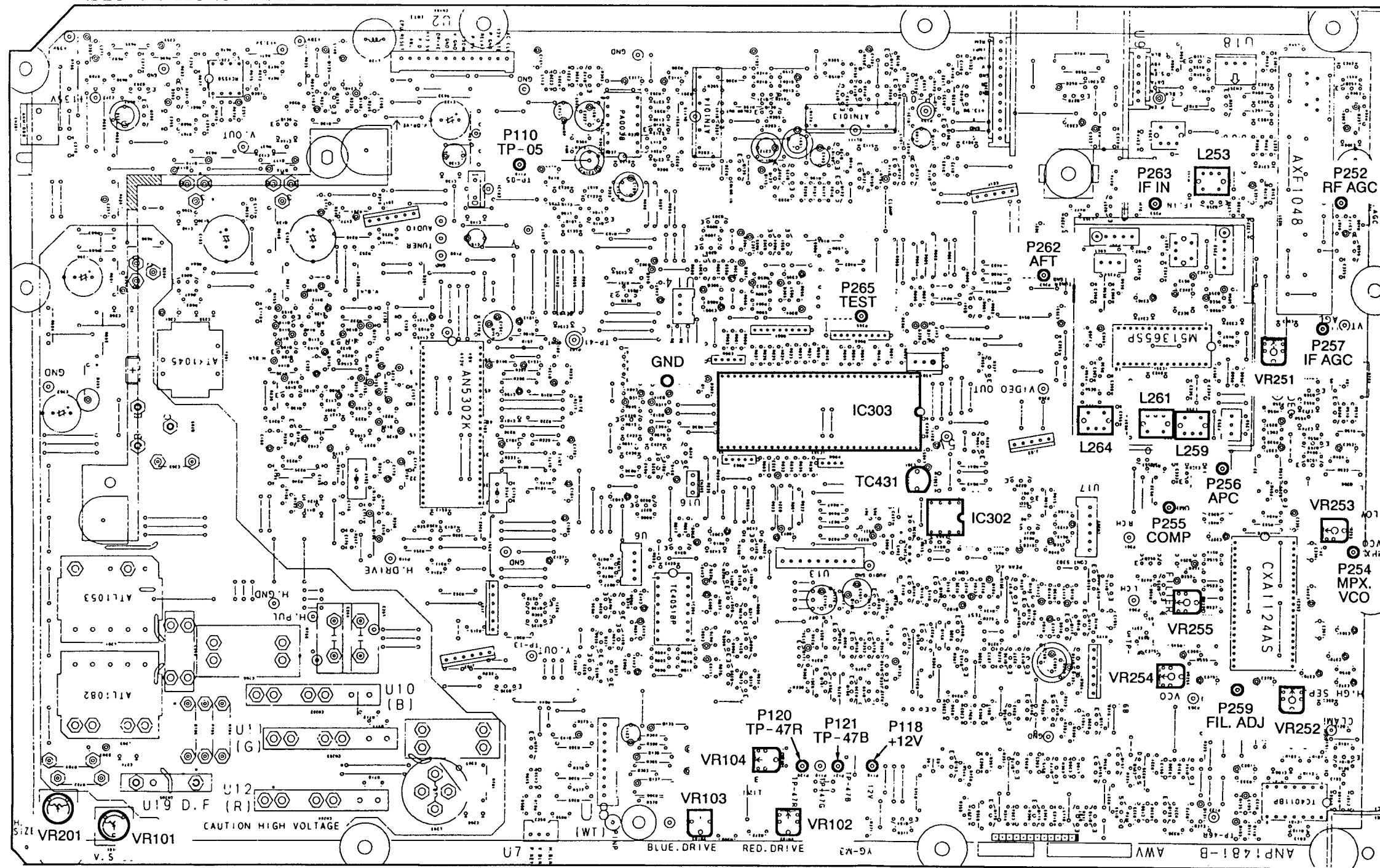
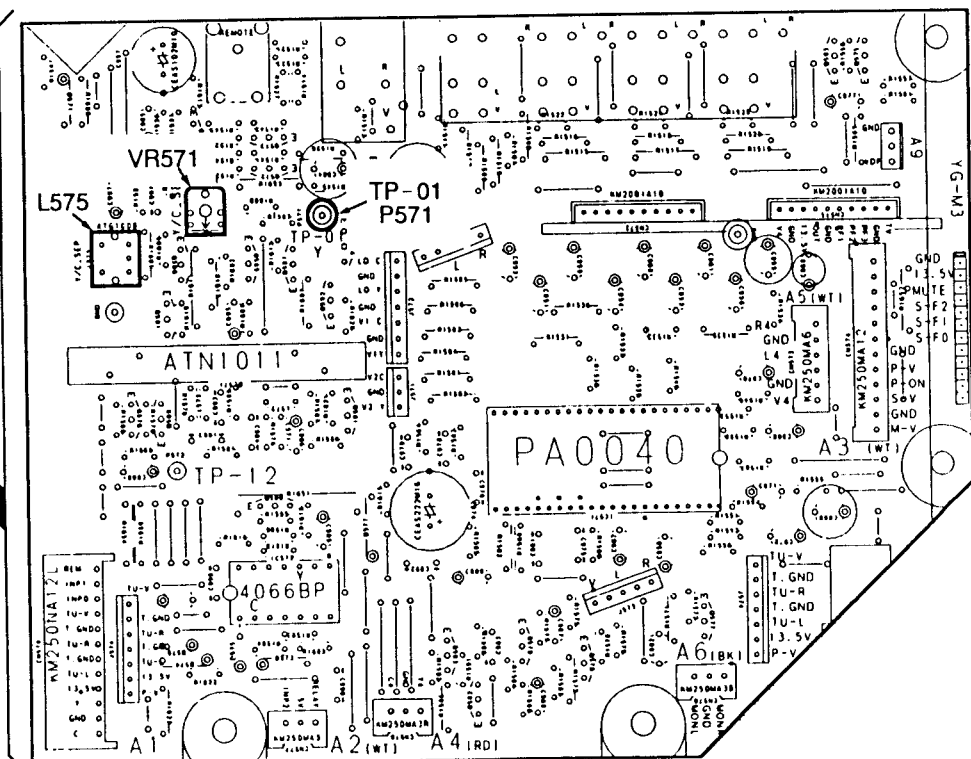
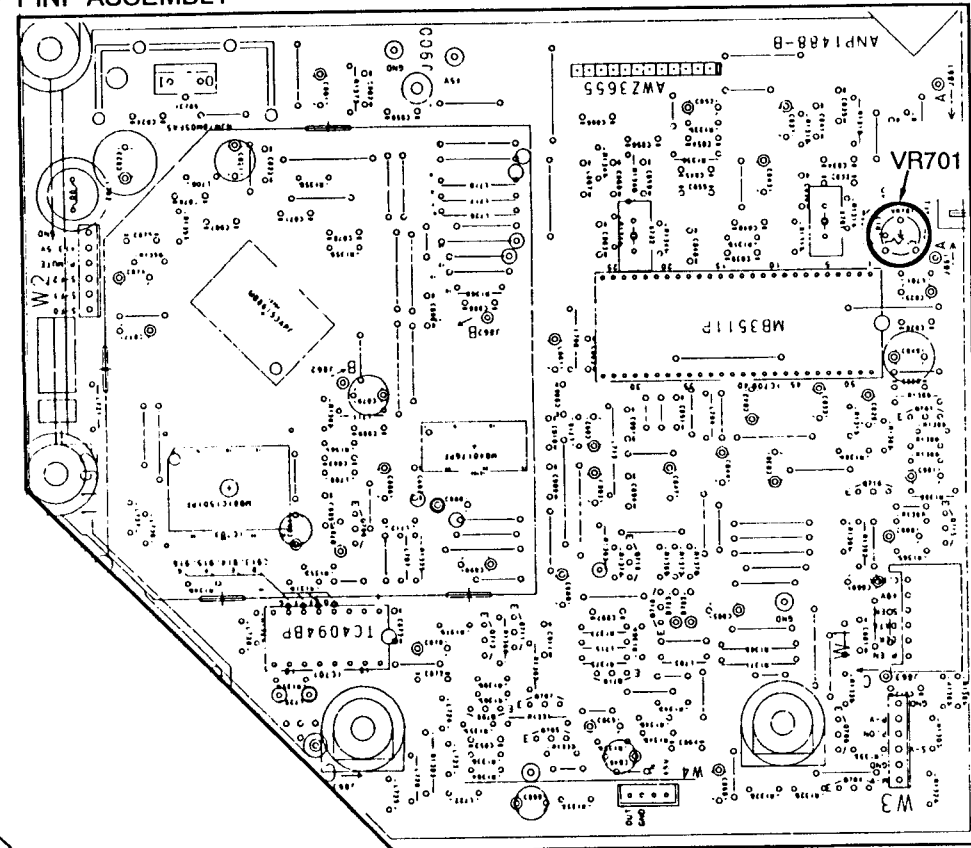


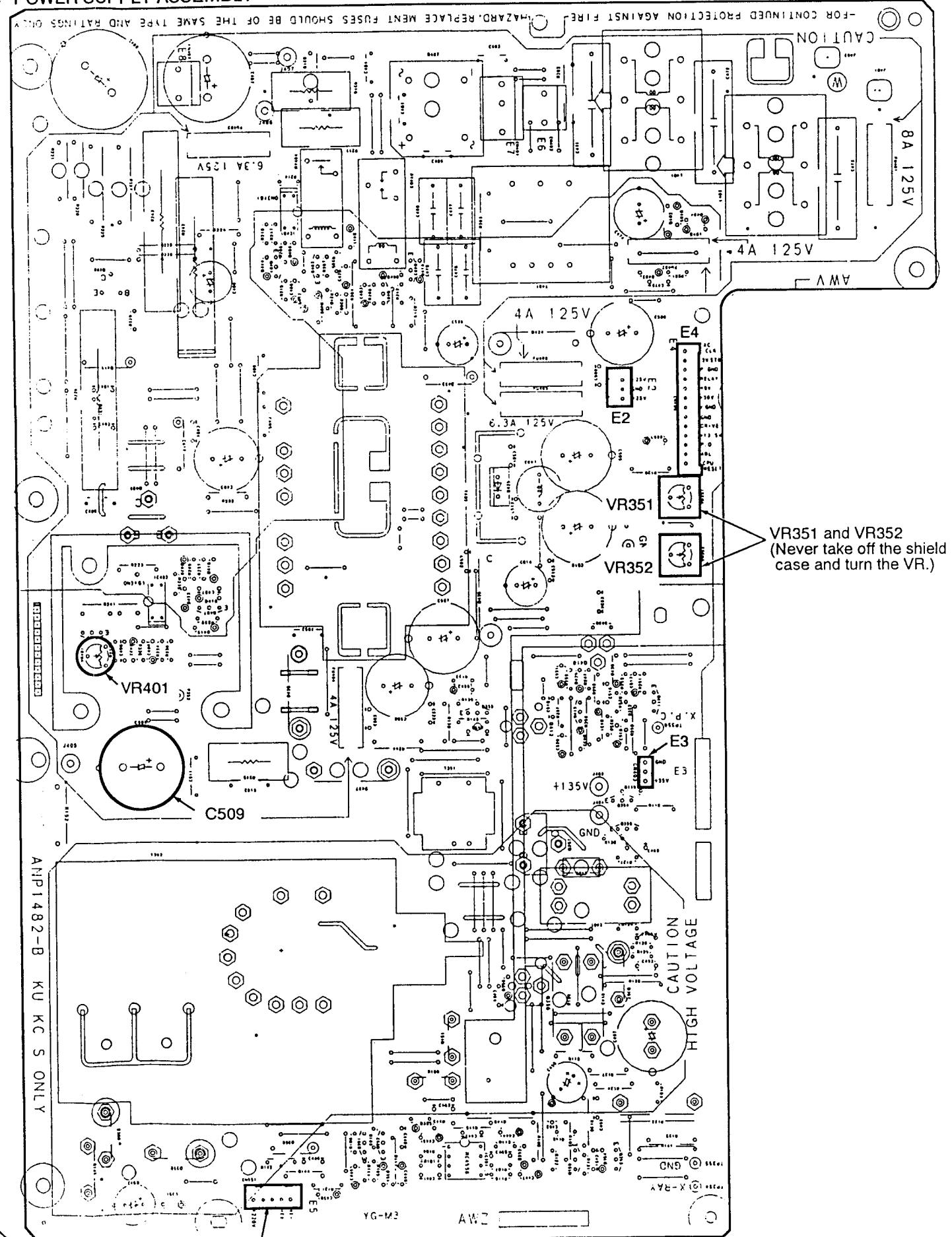
Fig. 9-11 Adjustment point (4)

PINP ASSEMBLY



AV I/O-3P • Y/C SEP ASSEMBLY

POWER SUPPLY ASSEMBLY



VR351 and VR352
(Never take off the shield
case and turn the VR.)

E5

10.2 ANODE CABLE SHEATH PEELING

- Peel the sheath of the end of cut anode cable and new anode cable.
- The anode cable structure is outlined in Fig. 10-2. Note that the sheath consists of two layers.
- The method used to peel the sheath back is illustrated in Fig. 10-3. Use a cutter knife, taking care not to damage the core leads.

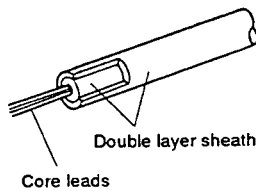
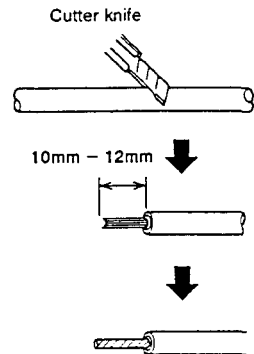


Fig. 10-2 Anode cable structure

Using a cutter knife (and taking care not to damage core leads), remove 10 to 12mm of sheath.



Twist core leads

Pre-soldering desirable

Fig. 10-3 Anode cable sheath peeling

10.3 ANODE CABLE JOINING PROCEDURE

- Join the cut anode cable and the new anode cable to restore as shown in Fig. 10-1. Also, when replacing the FBT, refer to section 9.17 "Anode cable connection and disconnection".
- Slip two silicon tubes (silicon tubes A and B in Fig. 10-4) over the anode cables before making the join.

- The silicon adhesive is applied to guard the cable core leads from external air. Apply binder liberally. After completing the joint (at step ⑩ in Fig. 10-4-1 thru 3), check that there is no hole in the silicon binder and the tube interior cannot be seen.
- Leave the silicon adhesive to harden overnight.

CAUTION: For the silicon adhesive, be sure to use silicon adhesive part no. GYL-017.

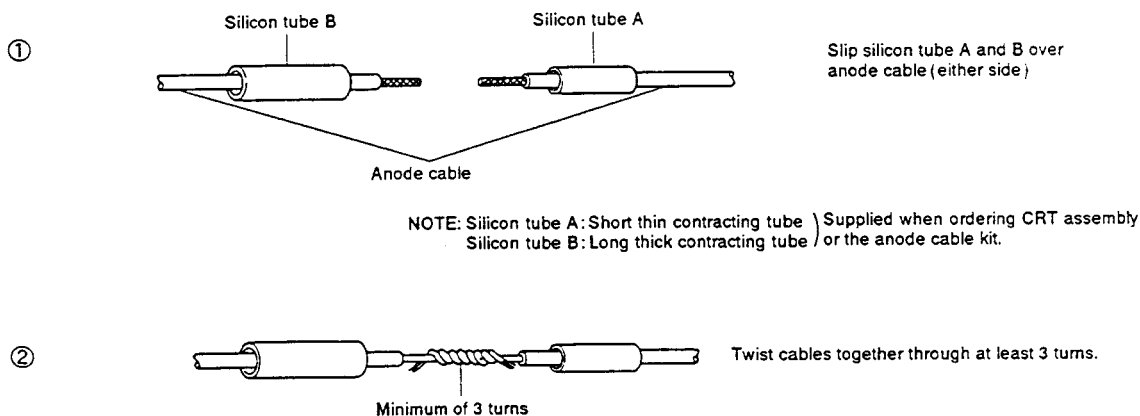


Fig. 10-4-1 Anode cable joining procedure (1)

10. REPLACING THE CRT ASSEMBLY

Serviceman Warning

When replacing the CRT assembly, turn off the power, unplug the AC plug and let the unit discharge for more than 1 minute.

The anode cables of the CRT assembly R, G, and B in PROJECTION MONITOR RECEIVER are connected in series as shown in Fig. 10-1.

When replacing the CRT assembly, the anode cable have to be cut.

Note: Since the anode cables for the CRT assembly to service supplies are only available in half lengths, either cut longer lengths, or join older lengths of cable to ensure that the original cable length is used.

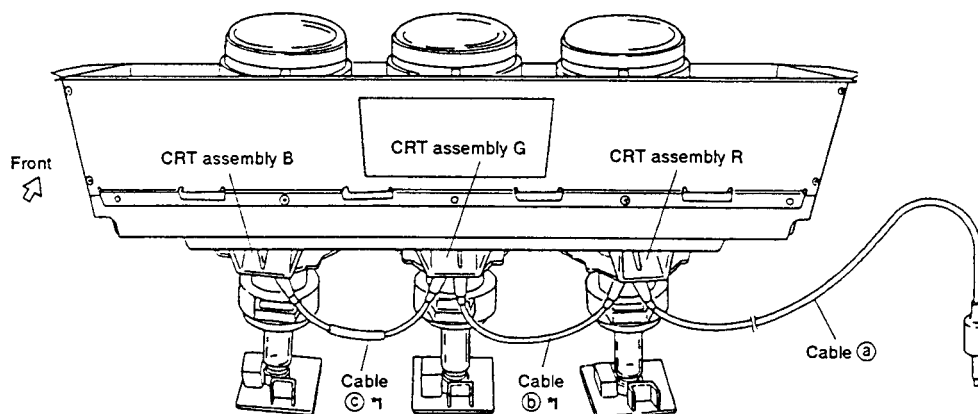
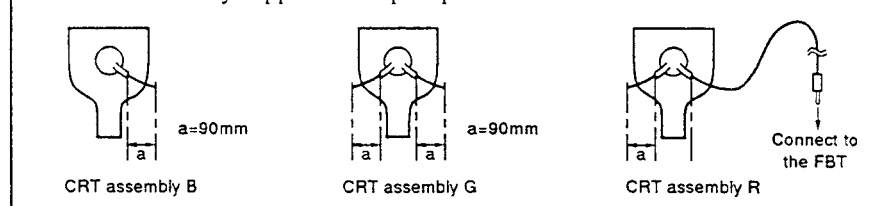
Table 10-1 Cable disconnecting methods

Cable	Replacement CRT assembly		
	When CRT assembly B is replaced	When CRT assembly G is replaced	When CRT assembly R is replaced
Cable ①	—	—	Disconnect the anode cable from the FBT. (Refer to section "9.17 Anode cable connection and disconnection".)
Cable ②	Leave it as is	Cut a place 20mm from the exact center towards the CRT assembly G	Cut a place 20mm from the exact center towards the CRT assembly R
Cable ③	Cut a place 20mm from the exact center towards the CRT assembly B	Cut a place 20mm from the exact center towards the CRT assembly G	Leave it as is

Note: Do not cut other cables by mistake.

10.1 WHEN REPLACING THE CRT ASSEMBLY

Each CRT assembly supplied as a spare part is as shown below.



*1: Length of cable ② and ③ is 180mm.

Fig. 10-1 Connection diagram of the each CRT assemblies

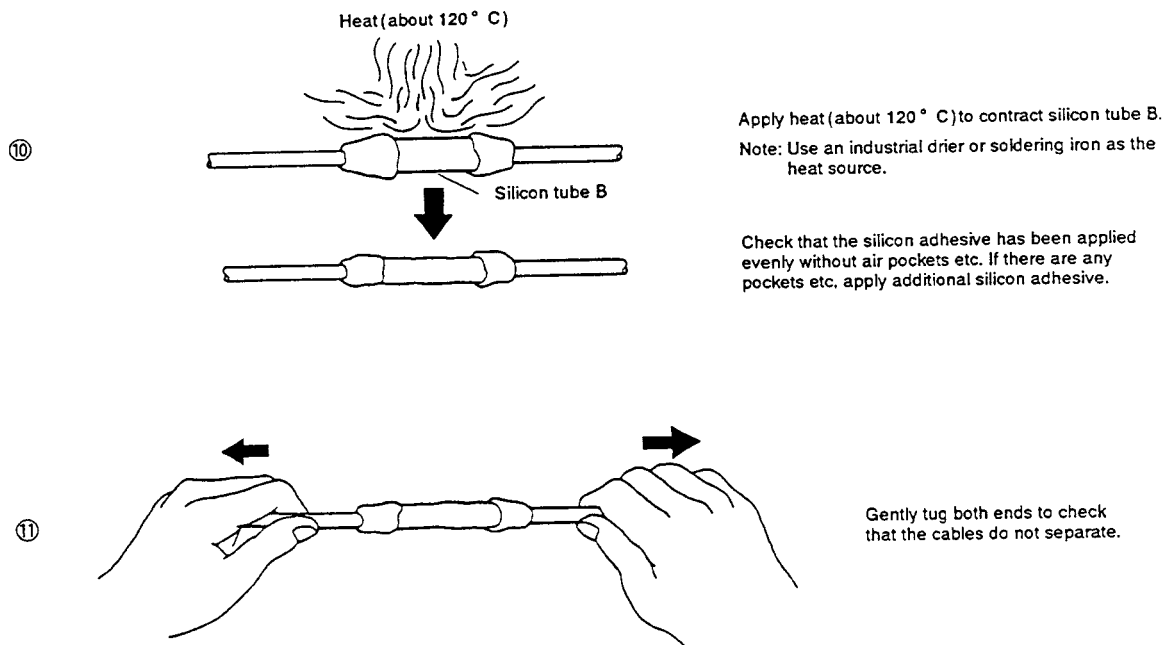


Fig. 10 - 4 - 3 Anode cable joining procedure (3)

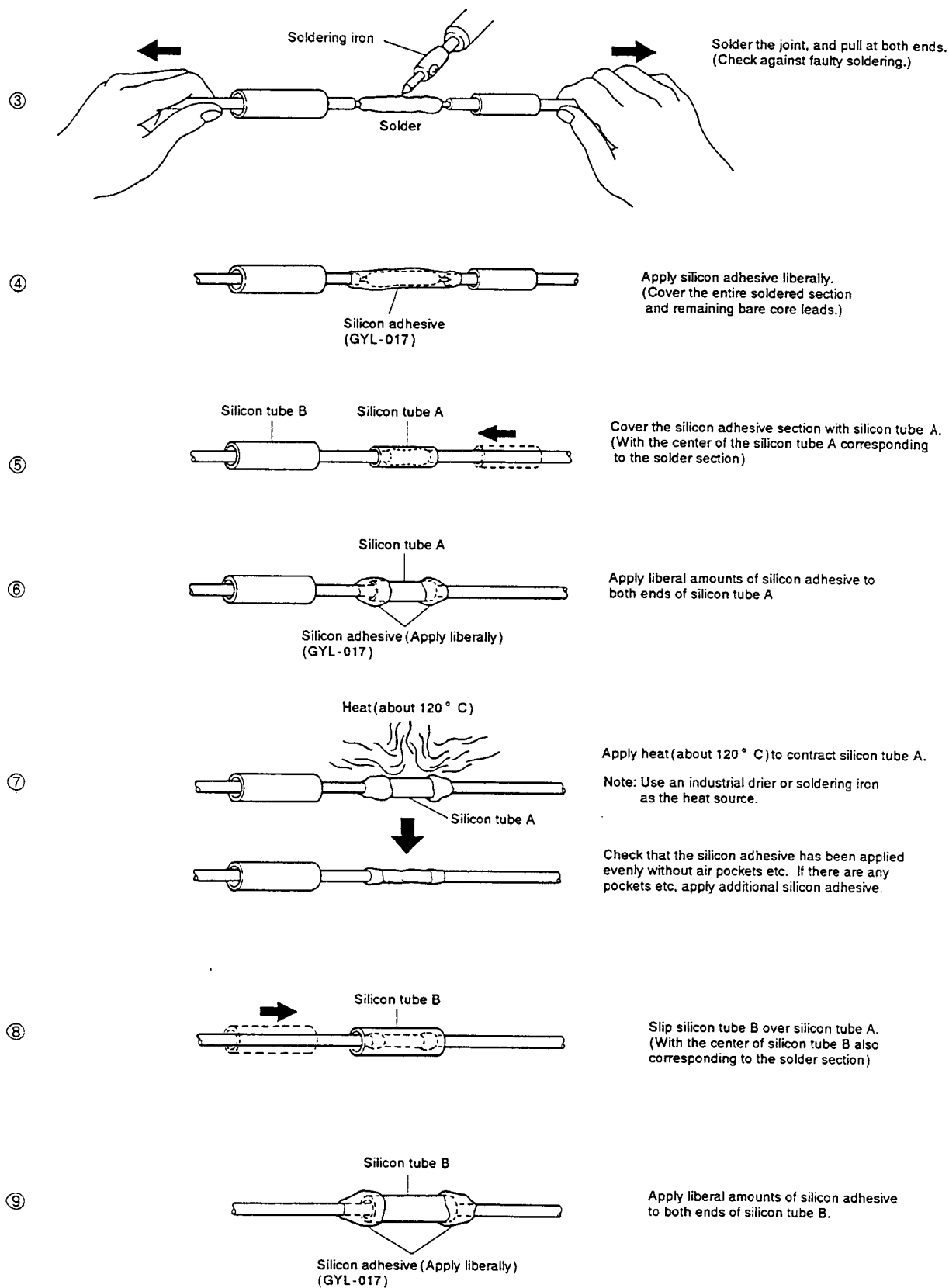


Fig. 10-4-2 Anode cable joining procedure (2)

11. REMOTE CONTROL UNIT [CU-SD044 (AXD1199)]

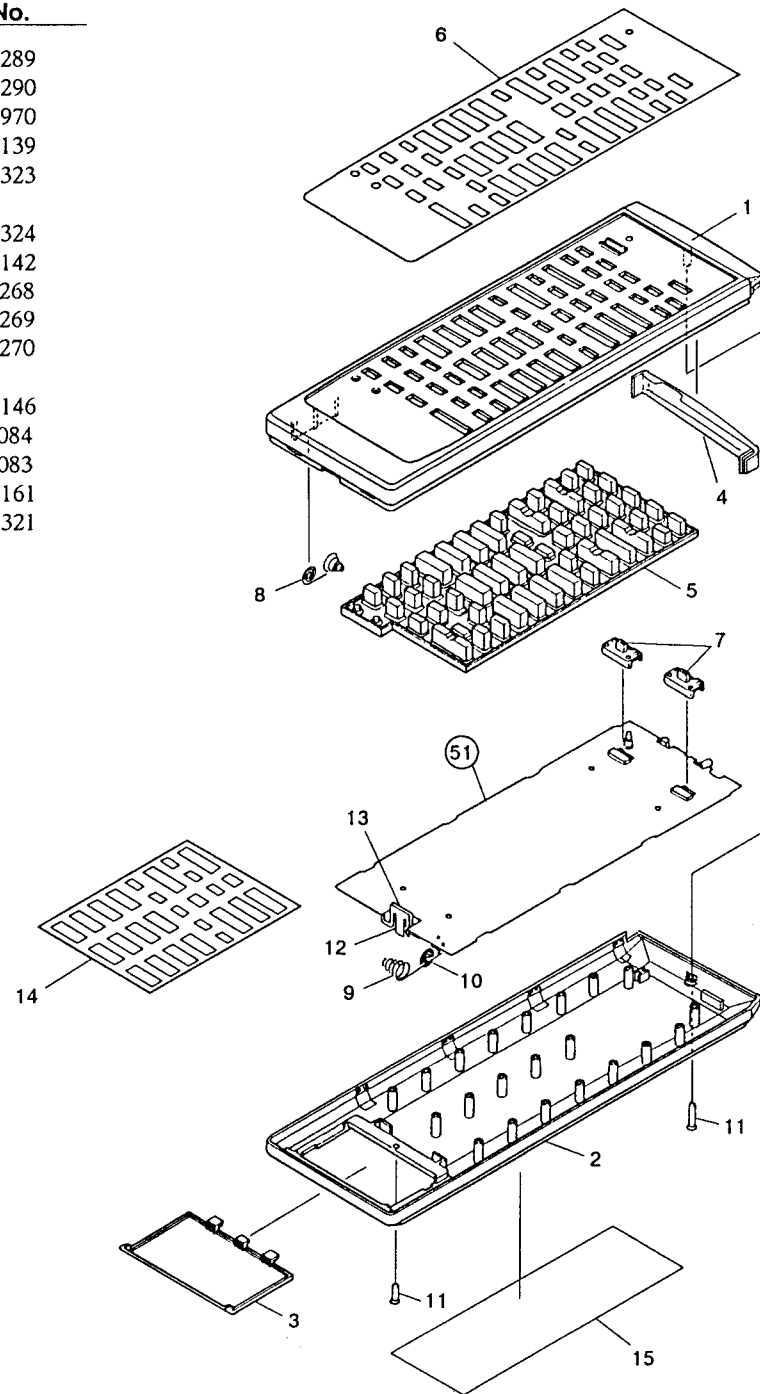
11.1 EXPLODED VIEWS AND PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

Parts List

Mark	No.	Description	Part No.
	1	Case (A)	AZA1289
	2	Case (B)	AZA1290
	3	Battery cover	AZN1970
	4	Filter	AZA1139
	5	Rubber sheet	AZA1323
	6	Name plate	AZA1324
	7	Knob (A)	AZA1142
	8	Spring	AZB1268
	9	Spring	AZB1269
	10	Spring	AZB1270
	11	Screw	AZA1146
	12	REMOTE POWER (SW1-A)	AZS1084
	13	REMOTE POWER (SW1-B)	AZS1083
	14	Sheet	AZA1161
	15	Label	AZA1321
	51	PCB board	



11.2 ELECTRICAL PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "◎" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω $\rightarrow$ 56 $\times$ 10¹ $\rightarrow$ 561 RD1/4PS 561J

47k Ω $\rightarrow$ 47 $\times$ 10³ $\rightarrow$ 473 RD1/4PS 473J

0.5 Ω $\rightarrow$ 0R5 RN2H 0R5K

1 Ω $\rightarrow$ 010 RSIP 010K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω $\rightarrow$ 562 $\times$ 10¹ $\rightarrow$ 5621 RN1/4SR 5621F

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC1	PDG068A
	IC2	AZC1232
	IC3	AZC1231
	Q1	AZC1229
	Q2	AZC1230
	D2	AZC1224
	D4	AZC1225
	D5	AZC1226
	D6 - D12	AZC1228

RESISTORS

Mark	Symbol & Description	Part No.
	R2 (2.7 Ω)	AZC1219
	R3 (100k Ω)	AZC1210
	R4 (680 Ω)	AZC1217
	R5 (8.2k Ω)	AZC1214
	R6 (4.7k Ω)	AZC1215
	R7 (33k Ω)	AZC1211
	R8 (1.1M Ω)	AZC1261
	R9 (1k Ω)	AZC1216
	R10 (10k Ω)	AZC1213
	R11 (22k Ω)	AZC1212

SWITCHES

Mark	Symbol & Description	Part No.
	S01, S03, S04, S06 Slide switch (SR RECALL/USE/LEARN) (VDP/VCR/AUX)	AZS1074
	SW1-A (REMOTE POWER)	AZS1084
	SW1-B (REMOTE POWER)	AZS1083

OTHERS

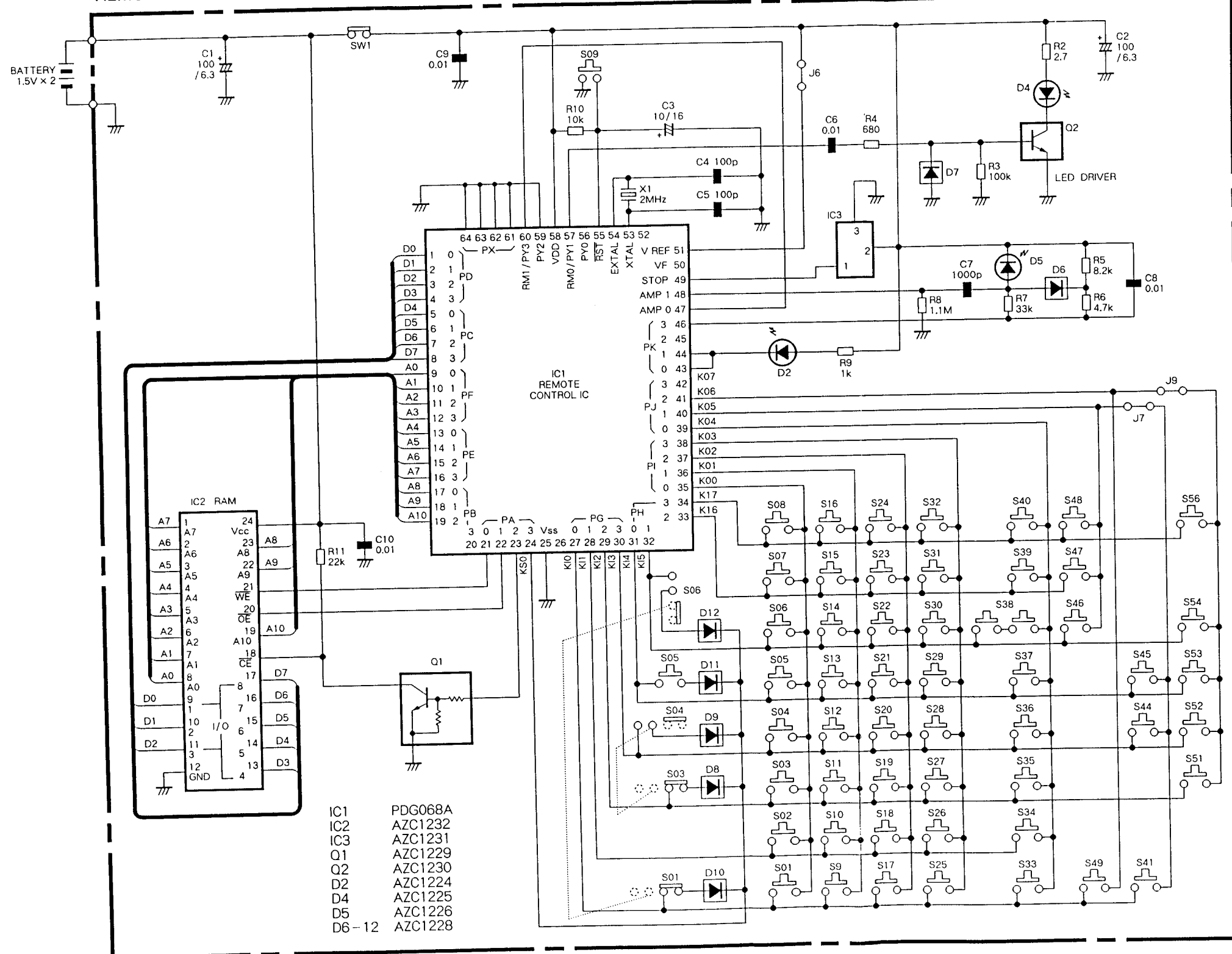
Mark	Symbol & Description	Part No.
	X1 (2.0MHz)	AZC1223

CAPACITORS

Mark	Symbol & Description	Part No.
	C1, C2 (100 μ F/6.3V)	AZC1253
	C3 (10 μ F/16V)	AZC1254
	C4, C5 (100pF)	AZC1222
	C6, C8 - C10 (0.01 μ F)	AZC1220
	C7 (1000pF)	AZC1221

11.3 SCHEMATIC DIAGRAM

REMOTE CONTROL UNIT (AXD1199)



1. RESISTORS :

Indicated in Ω , 1/4W, 1/6W and 1/8W, $\pm 5\%$ tolerance unless otherwise noted k; k Ω , M; M Ω , (F); $\pm 1\%$, (G); $\pm 2\%$, (K); $\pm 10\%$, (M); $\pm 20\%$ tolerance.

2. CAPACITORS :

Indicated in capacity (μ F)/voltage (V) unless otherwise noted p; pF. Indication without voltage is 50V except electrolytic capacitor.

3. OTHERS :

→ : Signal route.
 ⊗ : Adjusting point.

The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation. * marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

4. SWITCHES : (The underlined indicates the switch position)
 SW1 : REMOTE POWER

	LD	VCR1	VCR2
S01	ON	OFF	OFF
S06	OFF	OFF	ON

	SR RECALL	USE	LEARN
S03	ON	OFF	OFF
S04	OFF	OFF	ON

S05 : M-CLR
 S09 : RESET

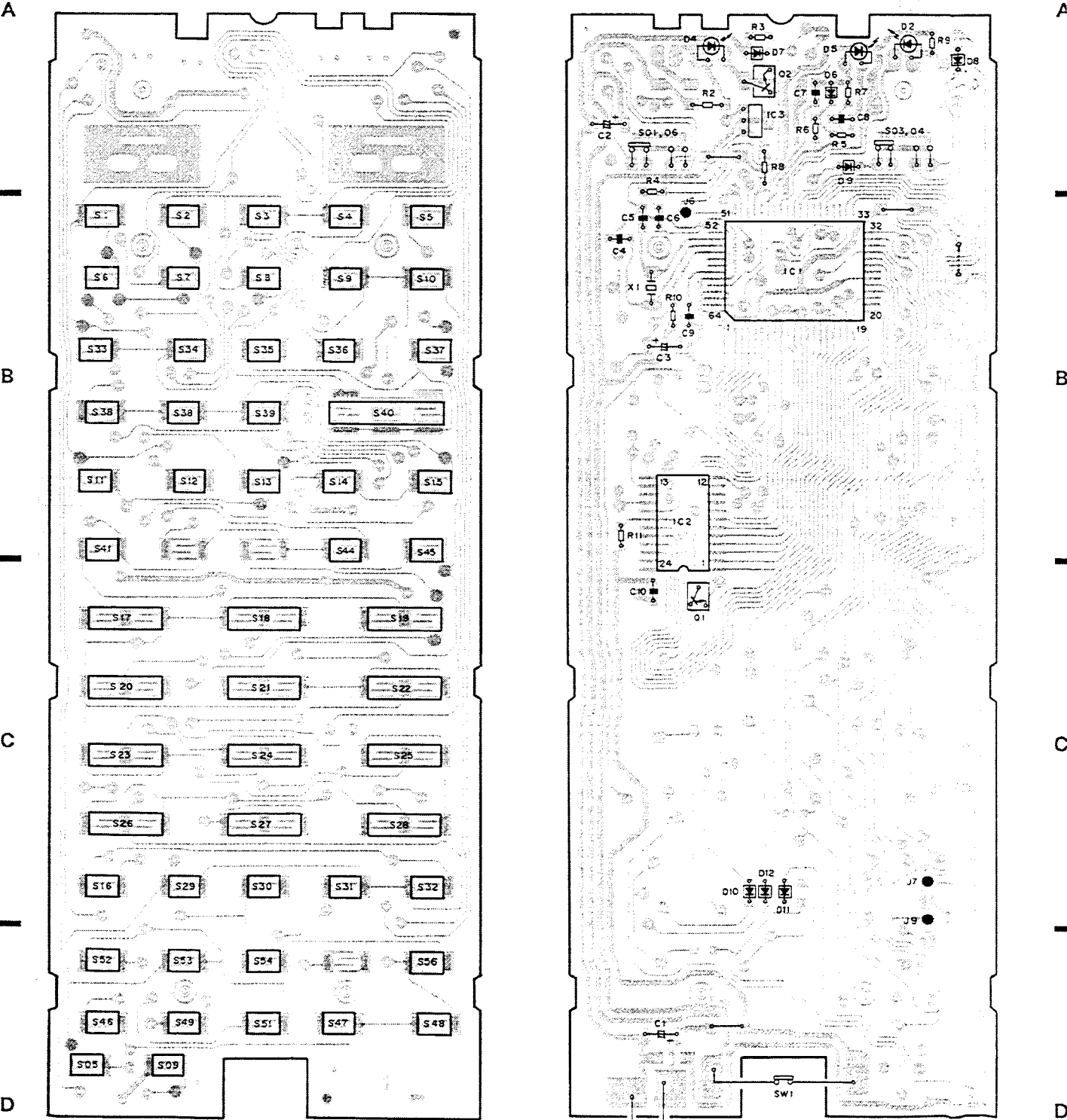
S1 : TV
 S2 : LD
 S3 : VCR1
 S4 : VCR2
 S5 : SLEEP
 S6 : TV
 S7 : LD
 S8 : VIDEO 1
 S9 : VIDEO 2
 S10 : VIDEO 3
 S11 : TV CHANNEL
 S12 : +
 S13 : MUTE
 S14 : -
 S15 : +
 S16 : P IN P
 S17 : 1
 S18 : 2
 S19 : 3
 S20 : 4
 S21 : 5
 S22 : 6
 S23 : 7
 S24 : 8
 S25 : 9
 S26 : 0
 S27 : CH SCAN

S28 : CH RETURN
 S29 : INPUT
 S30 : MULTI
 S31 : STILL
 S32 : DPO
 S33 : <<</VCR CH -
 S34 : >>>/VCR CH +
 S35 : <<</VCR CH -
 S36 : >>>/VCR CH +
 S37 : <<</VCR CH -
 S38 : >>>/VCR CH +
 S39 : <<</VCR CH -
 S40 : >>>/VCR CH +
 S41 : MTS
 S44 : DISPLAY
 S45 : D-SOUND EXPANSION
 S46 : STD/AV MEM
 S47 : <<</VCR CH -
 S48 : >>>/VCR CH +
 S49 : PICTURE
 S51 : SOUND
 S52 : SWAP
 S53 : SHIFT
 S54 : STROBE
 S56 : VNR

NOTE :

- : Indicates a chip resistor.
- : Indicates a chip capacitor.
- : Indicates a chip transistor.
- : Indicates a chip diode.

11.4 P.C.BOARD PATTERN



12. IC INFORMATION

■ PDB032B

Control microcomputer

● Pin Arrangement

1	VSS1	64	VDD
2	OSC1	63	DOSC1
3	OSC2	62	DOSC2
4	OPTION	61	VSS2
5	AFT	60	SCLK
6	DPO	59	SDATA
7	TV-APC	58	NOT USED
8	TV-MUTE	57	NOT USED
9	MTS0	56	REMIN
10	MTS1	55	VSYNC
11	STEREO	54	HSYNC
12	SAP	53	KEYIN
13	TV LOCK	52	RESET
14	ANT	51	TVENB
15	NOT USED	50	PINPENB
16	NOT USED	49	PINPSTB
17	NOT USED	48	ROMENB
18	NOT USED	47	4051A
19	LIN-WHITE	46	4051B
20	PEAK-ACL	45	4051C
21	COLOR	44	VMUTE/BLKIN
22	TINT	43	TESTCROSS
23	CONTR	42	R
24	BRIGHT	41	G
25	SHARP	40	B
26	DETAIL	39	BLKOUT
27	VOLUME	38	HSYNCSD
28	CONV/TONE	37	ACCLOCK
29	DSE2	36	RELAY
30	DSE1	35	INP0
31	DSE0	34	INP1
32	A-MUTE	33	INP2

(Top view)

● Pin Function

Note) I : CMOS input O : CMOS output N : N ch open drain output

No.	Pin Name	I/O	Function	Active																				
1	VSS1	I	GND																					
2	OSC1	I	Oscillation terminal for generating the system clock.																					
3	OSC2	O	Connect the ceramic resonator of 4.19MHz.																					
4	OPTION	I	OPTION voltage input. (Used assemblies are switched depending on input voltage value.) <table><tr><th>Input voltage (V)</th><th>Used assembly</th><th>Input voltage (V)</th><th>Used assembly</th></tr><tr><td>0.00 – 0.47</td><td>—</td><td>2.34 – 2.97</td><td>AWV1172</td></tr><tr><td>0.47 – 1.09</td><td>AWV1194</td><td>2.97 – 3.59</td><td>AWV1175</td></tr><tr><td>1.09 – 1.72</td><td>AWV1197</td><td>3.59 – 4.22</td><td>AWV1198</td></tr><tr><td>1.72 – 2.34</td><td>AWV1195</td><td>4.22 – 5.00</td><td>AWV1196</td></tr></table>	Input voltage (V)	Used assembly	Input voltage (V)	Used assembly	0.00 – 0.47	—	2.34 – 2.97	AWV1172	0.47 – 1.09	AWV1194	2.97 – 3.59	AWV1175	1.09 – 1.72	AWV1197	3.59 – 4.22	AWV1198	1.72 – 2.34	AWV1195	4.22 – 5.00	AWV1196	
Input voltage (V)	Used assembly	Input voltage (V)	Used assembly																					
0.00 – 0.47	—	2.34 – 2.97	AWV1172																					
0.47 – 1.09	AWV1194	2.97 – 3.59	AWV1175																					
1.09 – 1.72	AWV1197	3.59 – 4.22	AWV1198																					
1.72 – 2.34	AWV1195	4.22 – 5.00	AWV1196																					
5	AFT	I	AFT voltage input. AFT down is requested when the input is less than 1.41 V and AFT up is requested with the input of more than 3.6 V.																					
6	DPO	I	Analog voltage input for DPO control.																					
7	TV APC	O	APC switching output for TV. When detuning or turning power ON/OFF, TV APC is output. When tuning, it is released when AFT is in 62.5kHz step.	H																				
8	TV MUTE	O	MUTE output for TV. When detuning or turning power ON/OFF, TV MUTE is output. When tuning, it is released if AFT is completely tuned.	H																				
9	MTS0 (SAP)	O	MTS mode output. <table><tr><th>Pin \ MTS mode</th><th>MAIN/SAP</th><th>MAIN</th><th>SAP</th><th>MONO</th></tr><tr><th>MTS0</th><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><th>MTS1</th><td>L</td><td>L</td><td>H</td><td>H</td></tr></table>	Pin \ MTS mode	MAIN/SAP	MAIN	SAP	MONO	MTS0	L	H	L	H	MTS1	L	L	H	H	L					
Pin \ MTS mode	MAIN/SAP	MAIN	SAP	MONO																				
MTS0	L	H	L	H																				
MTS1	L	L	H	H																				
10	MTS1 (MAIN)	O		L																				

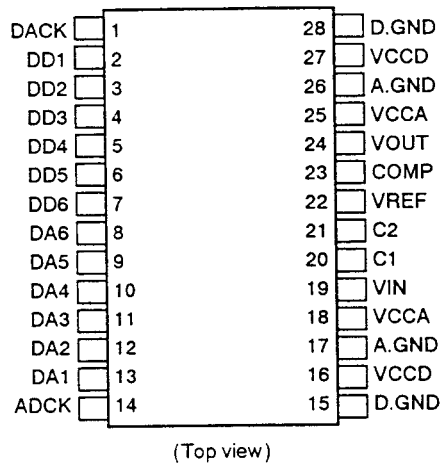
No.	Pin Name	I/O	Function	Active																																								
11	STEREO	I	Broadcast format deciding input. <table><tr><td></td><td>STEREO/SAP</td><td>SAP</td><td>STEREO</td><td>MONO</td></tr><tr><td>STEREO</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>SAP</td><td>L</td><td>L</td><td>H</td><td>H</td></tr></table>		STEREO/SAP	SAP	STEREO	MONO	STEREO	L	H	L	H	SAP	L	L	H	H	L																									
	STEREO/SAP	SAP		STEREO	MONO																																							
STEREO	L	H		L	H																																							
SAP	L	L	H	H																																								
12	SAP	I		L																																								
13	TV LOCK	I	PLL lock detection input. Decide the PLL IC(TD6359P)is locked with the data sent from the microcomputer.	L																																								
14	ANT	O	<table><tr><td>ANTENNA -1</td><td>L</td></tr><tr><td>ANTENNA -2</td><td>H</td></tr></table>	ANTENNA -1	L	ANTENNA -2	H																																					
ANTENNA -1	L																																											
ANTENNA -2	H																																											
15	Not used	I	Not used. (Connect to Vss)																																									
16	N. C.	O	Not used.																																									
17	N. C.	N	Not used.																																									
18	N. C.	N	Not used.																																									
19	LIN - WHITE	N	Control output of linear white circuit. <table><tr><td>LINEAR WHITE ON</td><td>H</td></tr><tr><td>LINEAR WHITE OFF</td><td>L</td></tr></table>	LINEAR WHITE ON	H	LINEAR WHITE OFF	L	L																																				
LINEAR WHITE ON	H																																											
LINEAR WHITE OFF	L																																											
20	PAEK - ACL	N	Control output of PEAK - ACL circuit. <table><tr><td>PEAK ACL ON</td><td>H</td></tr><tr><td>PEAK ACL OFF</td><td>L</td></tr></table>	PEAK ACL ON	H	PEAK ACL OFF	L	L																																				
PEAK ACL ON	H																																											
PEAK ACL OFF	L																																											
21	COLOR	N	PWM output for color level control.	H																																								
22	TINT	N	PWM output for tint level control.	H																																								
23	CONTR	N	PWM output for contrast level control.	H																																								
24	BRIGHT	N	PWM output for brightness level control.	H																																								
25	SHARP	N	PWM output for sharpness level control.	H																																								
26	DETAIL	N	PWM output for detail level control.	H																																								
27	VOLUME	N	PWM output for volume level control.	H																																								
28	CONV/TONE	N	PWM output for convergence and sound quality level control.	H																																								
29	DSE2	O	DSE (Dynamic Sound Expansion) mode control output. <table><tr><th>Pin Name \ DSE</th><th>DSE OFF</th><th>THEATER</th><th>MUSIC</th><th>S. STEREO</th></tr><tr><td>DSE2</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>DSE1</td><td>L</td><td>L</td><td>H</td><td>H</td></tr><tr><td>DSE0</td><td>L</td><td>H</td><td>H</td><td>L</td></tr></table>	Pin Name \ DSE	DSE OFF	THEATER	MUSIC	S. STEREO	DSE2	L	H	L	H	DSE1	L	L	H	H	DSE0	L	H	H	L																					
Pin Name \ DSE	DSE OFF	THEATER		MUSIC	S. STEREO																																							
DSE2	L	H		L	H																																							
DSE1	L	L	H	H																																								
DSE0	L	H	H	L																																								
30	DSE1	O																																										
31	DSE0	O																																										
32	AMUTE	O	AMUTE output. When selecting MUTE mode, switching input and turning power ON/OFF, AMUTE is output.	H																																								
33	INP2	O	Input switching signal output. ● AWW1194 and AWW1197 <table><tr><th>Pin Name \ Function</th><th>TV</th><th>VDP</th><th>VIDEO</th></tr><tr><td>INP0</td><td>H</td><td>L</td><td>L</td></tr><tr><td>INP1</td><td>H</td><td>L</td><td>H</td></tr><tr><td>INP2</td><td>—</td><td>—</td><td>—</td></tr></table> ● Excepting AWW1194 and AWW1197 <table><tr><th>Pin Name \ Function</th><th>TV</th><th>VDP</th><th>VIDEO - 1</th><th>VIDEO - 2</th><th>VIDEO - 3</th></tr><tr><td>INP0</td><td>H</td><td>H</td><td>L</td><td>L</td><td>H</td></tr><tr><td>INP1</td><td>H</td><td>L</td><td>H</td><td>L</td><td>H</td></tr><tr><td>INP2</td><td>L</td><td>L</td><td>L</td><td>L</td><td>H</td></tr></table>	Pin Name \ Function	TV	VDP	VIDEO	INP0	H	L	L	INP1	H	L	H	INP2	—	—	—	Pin Name \ Function	TV	VDP	VIDEO - 1	VIDEO - 2	VIDEO - 3	INP0	H	H	L	L	H	INP1	H	L	H	L	H	INP2	L	L	L	L	H	
Pin Name \ Function	TV	VDP		VIDEO																																								
INP0	H	L		L																																								
INP1	H	L	H																																									
INP2	—	—	—																																									
Pin Name \ Function	TV	VDP	VIDEO - 1	VIDEO - 2	VIDEO - 3																																							
INP0	H	H	L	L	H																																							
INP1	H	L	H	L	H																																							
INP2	L	L	L	L	H																																							
34	INP1	O																																										
35	INP0	O																																										

No.	Pin Name	I/O	Function	Active																																
36	RELAY	O	Power relay control signal output. <table><tr><td>POWER ON</td><td>L</td></tr><tr><td>POWER OFF</td><td>H</td></tr></table>	POWER ON	L	POWER OFF	H	L																												
POWER ON	L																																			
POWER OFF	H																																			
37	ACCLOCK	I	AC clock detection input. Used for time control for the sleep timer and auto power off and for detection of AC power OFF. Dummy reset (software reset) is generated when no AC clock is supplied for 100 msec.																																	
38	HSYNCSD	I	Horizontal sync count input for the tuner AFT, H-SYNC is counted with the cycle of 0.99 msec, and when the counted amount is from 6 to 8, the system decides that a station exists.																																	
39	BLKOUT	O	OSD blanking output.	H																																
40	B	O	OSD character data output.	H																																
41	G	O		H																																
42	R	O		H																																
43	TESTCROSS	O		The switch (TC4066BP) is controlled to switch the G output to Y when a test cross is generated.	H																															
44	VMUTE/BLKIN	I/O	VIDEO MUTE output and blanking (no-signal) detection input. Functions as an input port under normal conditions to detect a no-signal condition for automatic power off. VMUTE is output when generating the test cross, when switching inputs and when turning the power on or off.																																	
45	4051C	N	<table><tr><td></td><td>4051C</td><td>4051B</td><td>4051A</td></tr><tr><td>BASS</td><td>L</td><td>L</td><td>L</td></tr><tr><td>TREBLE</td><td>L</td><td>L</td><td>H</td></tr><tr><td>BALANCE</td><td>L</td><td>H</td><td>L</td></tr><tr><td>CONVERGENCE R-H</td><td>L</td><td>H</td><td>H</td></tr><tr><td>CONVERGENCE R-V</td><td>H</td><td>L</td><td>L</td></tr><tr><td>CONVERGENCE B-H</td><td>H</td><td>L</td><td>H</td></tr><tr><td>CONVERGENCE B-V</td><td>H</td><td>H</td><td>L</td></tr></table>		4051C	4051B	4051A	BASS	L	L	L	TREBLE	L	L	H	BALANCE	L	H	L	CONVERGENCE R-H	L	H	H	CONVERGENCE R-V	H	L	L	CONVERGENCE B-H	H	L	H	CONVERGENCE B-V	H	H	L	
	4051C	4051B		4051A																																
BASS	L	L		L																																
TREBLE	L	L		H																																
BALANCE	L	H		L																																
CONVERGENCE R-H	L	H		H																																
CONVERGENCE R-V	H	L		L																																
CONVERGENCE B-H	H	L		H																																
CONVERGENCE B-V	H	H	L																																	
46	4051B	N																																		
47	4051A	N																																		
48	ROMENB	N	Chip enable output for EAROM (M6M80041P).	L																																
49	PINPSTB	N	PINP data strobe.	L																																
50	PINPENB	N	PINP data enable.	L																																
51	TVENB	N	PLL data enable. Use for output the serial data to PLL (TD6359P).	H																																
52	RESET	I	System reset. Reset is done by applying L for more than 0.95 μ sec (when OSC=4.19 MHz).	L																																
53	KEYIN	I	Main unit key scan signal (serial) input.																																	
54	HSYNC	I	Synchronizing signal input for OSD.	H																																
55	VSYNC	I		H																																
56	REMIN	I	Remote control signal input. Decipher the SR format signal.																																	
57	NOT USED	N	Not used. (Connect to Vss)																																	
58	NOT USED	N	Not used. (Connect to Vss)																																	
59	SDATA	I/N	Serial data input and output. Use for interface with EAROM, PLL and PINP.	H																																
60	SCLK	O	Serial transmission clock.	H																																
61	VSS2		GND for OSD.	H																																
62	DOSC2	O	Clock oscillation terminal for character generator. Connect the LC for 6MHz - 10MHz oscillation.																																	
63	DOSC1	I																																		
64	VDD	I	Apply +5V power supply.																																	

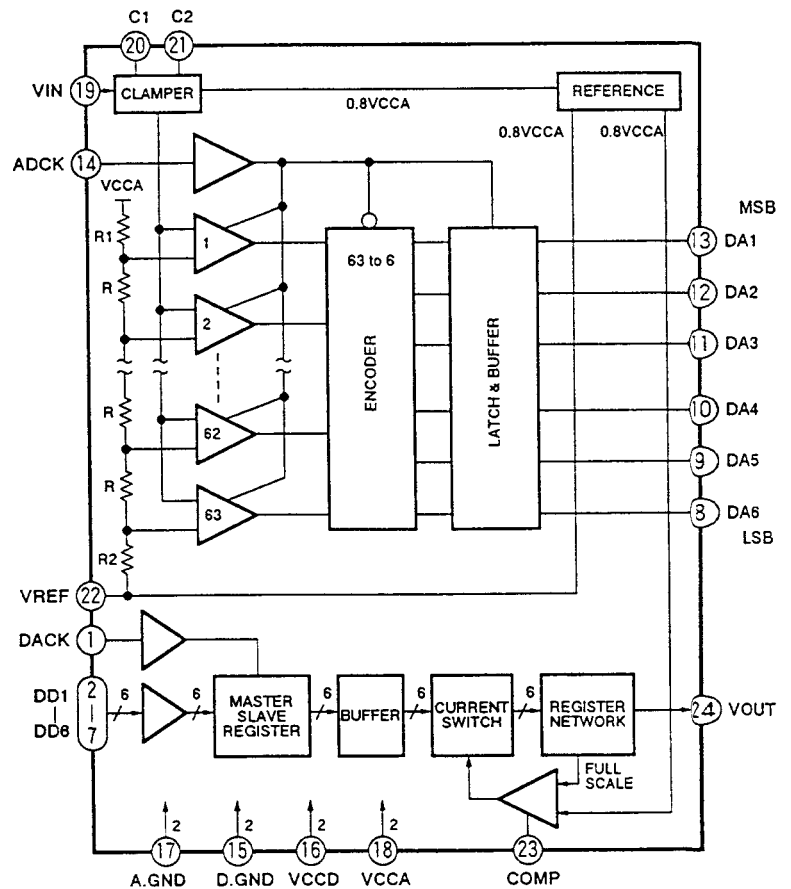
MB40176PF

A/D • D/A converter

● Pin Arrangement



● Block Diagram



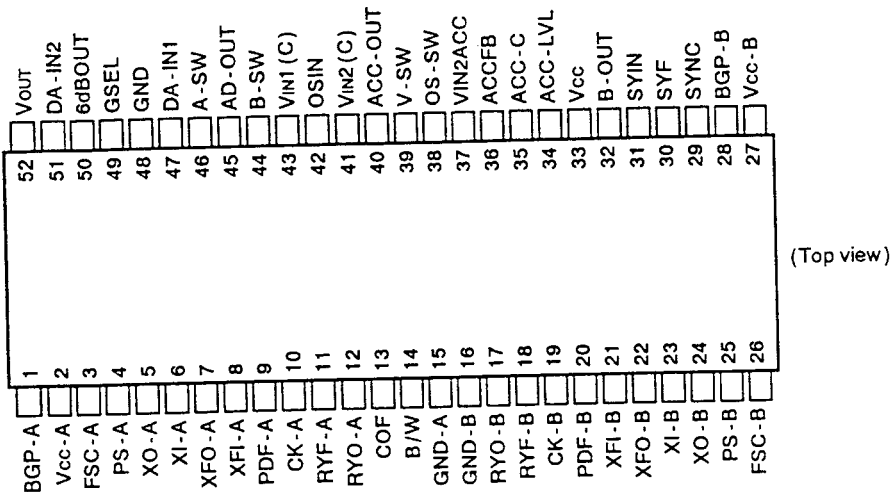
● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	DACK	D/A clock input	15	D.GND	GND for digital section
2	DD1	Digital signal input	16	VCCD	VCC for digital section
3	DD2		17	A.GND	GND for analog section
4	DD3		18	VCCA	VCC for analog section
5	DD4		19	VIN	Analog signal input
6	DD5		20	C1	Connect the capacitor for clamp
7	DD6		21	C2	
8	DA6	Digital signal output	22	VREF	Reference voltage output
9	DA5		23	COMP	Connect the capacitor for phase compensation
10	DA4		24	VOUT	Analog signal output
11	DA3		25	VCCA	VCC for analog section
12	DA2		26	A.GND	GND for analog section
13	DA1		27	VCCD	VCC for digital section
14	ADCK	A/D clock input	28	D.GND	GND for digital section

■ MB3511P

PLL IC for PINP

● Pin Arrangement

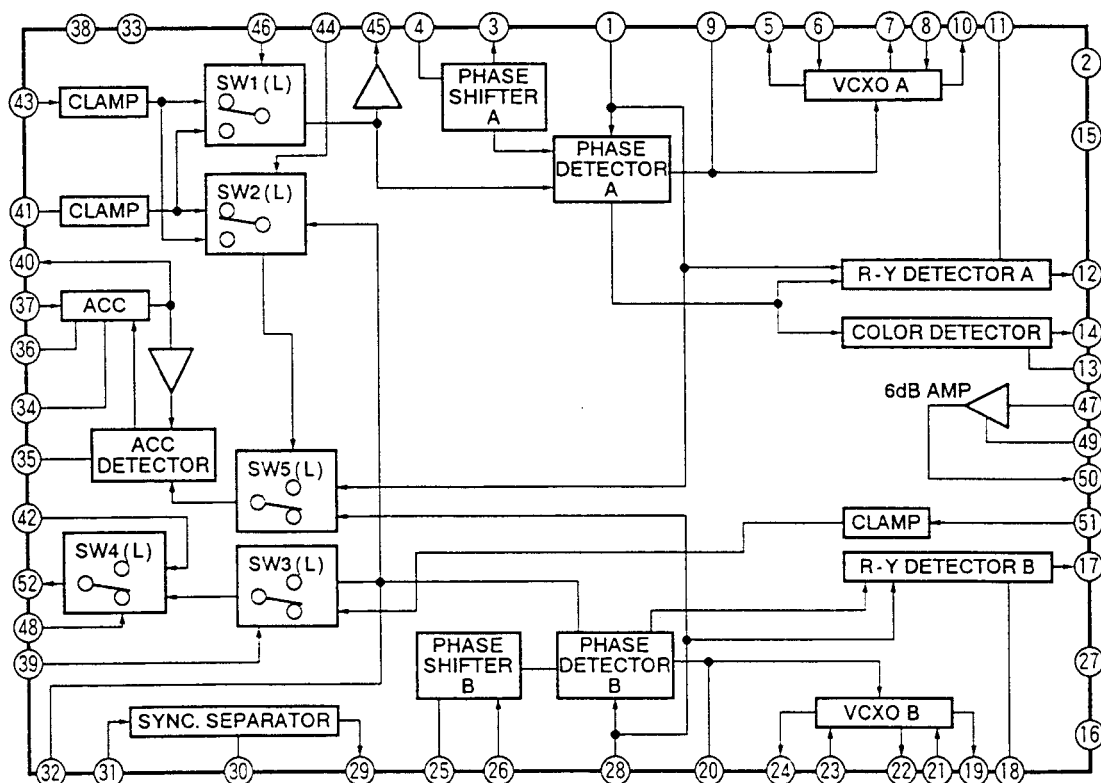


● Pin Function

No.	Pin Name	Control Block	Function	Remark	No.	Pin Name	Control Block	Function	Remark
1	BGP-A	Sub-picture A	Burst gate pulse input	CMOS	16	GND-B	Main-picture B	Ground	GND
2	Vcc-A		Apply +5V power supply voltage	5V	17	RYO-B		R-Y detector output	CMOS
3	FSC-A		fsc input	Approx 1Vp-p	18	RYF-B		Connect the capacitor for R-Y detector	—
4	PS-A		Phase shifter control input	Open	19	CK-B		4fsc output	Approx 1Vp-p
5	XO-A		Connect to output side of the crystal oscillator	(X'tal)	20	PDF-B		Connect the capacitor for phase detector	—
6	XI-A		Connect to input side of the crystal oscillator	(X'tal)	21	XFI-B		VCXO filter input	—
7	XFO-A		VCXO filter output	—	22	XFO-B		VCXO filter output	—
8	XFI-A		VCXO filter input	—	23	XI-B		Connect to input side of the crystal oscillator	(X'tal)
9	PDF-A		Connect the capacitor for phase detector	—				Connect to output side of the crystal oscillator	(X'tal)
10	CK-A		4fsc output	Approx 1Vp-p	24	XO-B		Phase shifter control input	Open
11	RYF-A		Connect the capacitor for R-Y detector	—				fsc input	Approx 1Vp-p
12	RYO-A		R-Y detector output	CMOS	25	PS-B		Apply +5V power supply voltage	5V
13	COF		Connect the capacitor for color detector	—	26	PSC-B		Burst gate pulse input	CMOS
14	B/W		Color detector output (Black & White)	CMOS	27	Vcc-B			
15	GND-A		Ground	GND	28	BGP-B			

No.	Pin Name	Control Block	Function	Remark	No.	Pin Name	Control Block	Function	Remark
29	SYNC	Common section	Composite sync. signal output (sync. detection)	CMOS	41	VIN2 (C)	Common section	Video 2 (Sub-picture) input with clamp	VIDEO
30	SYF		Connect the capacitor for detecting the composite sync. signal	-	42	OSIN		On screen input	DCbias
31	SYIN		Composite sync. signal detector input	VIDEO	43	VIN1 (C)		Video 1 (Main-picture) input	VIDEO
32	B-OUT		Main picture output for detecting the composite sync. signal	VIDEO	44	B-SW		Switch 2 (Change the Main-picture) control input	CMOS
33	Vcc		Apply +5V power supply voltage	5V	45	AD-OUT		Sub-picture output (to A/D converter)	VIDEO
34	ACC-LVL		ACC control	-	46	A-SW		Switch 1 (Change the Sub-picture) control input	CMOS
35	ACC-C		Connect the capacitor for ACC control	-	47	DA-IN1		6dB amp. input (from A/D converter)	VIDEO
36	ACCFB		ACC filter output	-	48	GND		Ground	GND
37	VIN2ACC		Video 2 (E-E) input	VIDEO	49	GSEL		Gain control	-
38	OS-SW		On screen control input	CMOS	50	6dBOUT		6dB amp. input	VIDEO
39	V-SW		PINP control input (Video switch)	CMOS	51	DA-IN2		Playback signal of the Sub-picture input	VIDEO
40	ACC-OUT		ACC output VIDEO		52	Vout		Video signal output	VIDEO

● Block Diagram



● Function of the MB3511P**1. PLL section (Separate circuit blocks for the main and sub pictures)****Phase Shifter (PS)**

Adjusts the phase of PLL Lock. It can be also used in the opening state. When power is supplied from the power source by separating resistance, retract phase of the PLL is adjusted and tint adjustment can be made.

Phase Detector (PD)

Detects the phase shift of PLL. While the BGP (Burst Gate Pulse) is at the "L" level, this detects the phase shift between the burst signal and fsc input and supplies power to the crystal-clock VCO circuit.

Crystal-Clock VCO section (VCXO)

Produces signals of 4fsc, which are synchronized with the burst phase by means of PLL. Inserts 1/4 dividing circuit between 4fsc output and fsc input to compound PLL.

R - Y Detector

Detects the burst phase in the PAL signals. This block generates the signals of "H" or "L" level according to whether burst advances or retards.

Color Detector

Detects whether or not there are burst signals for a sub-picture. When there is no color for a sub-picture, this detector works to restrain the color signals from being generated for the sub-picture. (In the case of a black-and-white screen, this detector goes to "H" level.)

2. Switching section (for both the main picture and sub pictures)**SW1, SW2**

These are analog switches which distribute the input signals of the main and sub pictures to the two PLL circuits. These switches connect or disconnect the main and sub pictures.

Normally, adjust the control-input level to "H".

As SW1 and SW2 can be controlled independently, the same picture can be also compounded as PINP.

CLAMP

A clamper circuit is incorporated into each input line for the video signal, thus clamping can be easily performed when capacity is joined.

Automatic Color level Control (ACC)

This circuit is incorporated for the signals of sub pictures, for cases where the color signal level of the tuner output is insufficient or unstable. Gain control for the color signal is made within the range of 0 to 6 dB.

Sync. Separator

Detects the sync. range of the main picture and produces a compound sync. signal. To prevent malfunction by color signals, a low-pass filter is connected between the B-OUT terminal (Pin 32) and the SYIN terminal (Pin 31).

6dB AMP

Normally, noise in the high-frequency range is eliminated from the D/A converter output by a low-pass filter. A 6dB amplifier compensates for attenuation of the output signal caused by filtering.

When connecting the GSEL terminal (Pin 49) to the Vcc, AMP works as a 6dB amplifier. When connecting LCR, frequency is compensated by a low-pass filter.

Video Switch (SW3)

Playback output signals of the main picture and sub pictures are switched to compound PINP.

On Screen (SW4)

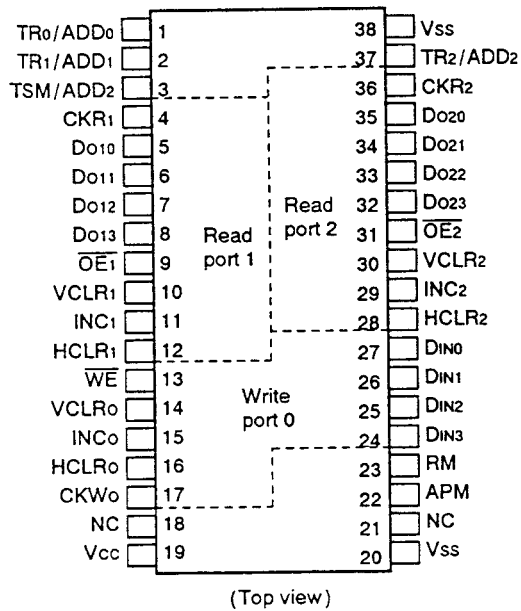
Normally, the levels of the OS-SW terminal (Pin 38) and OSIN terminal (Pin 42) are set at "L".

These are for future use.

■ MB81C1501PF

1M bit 3port field construction memory

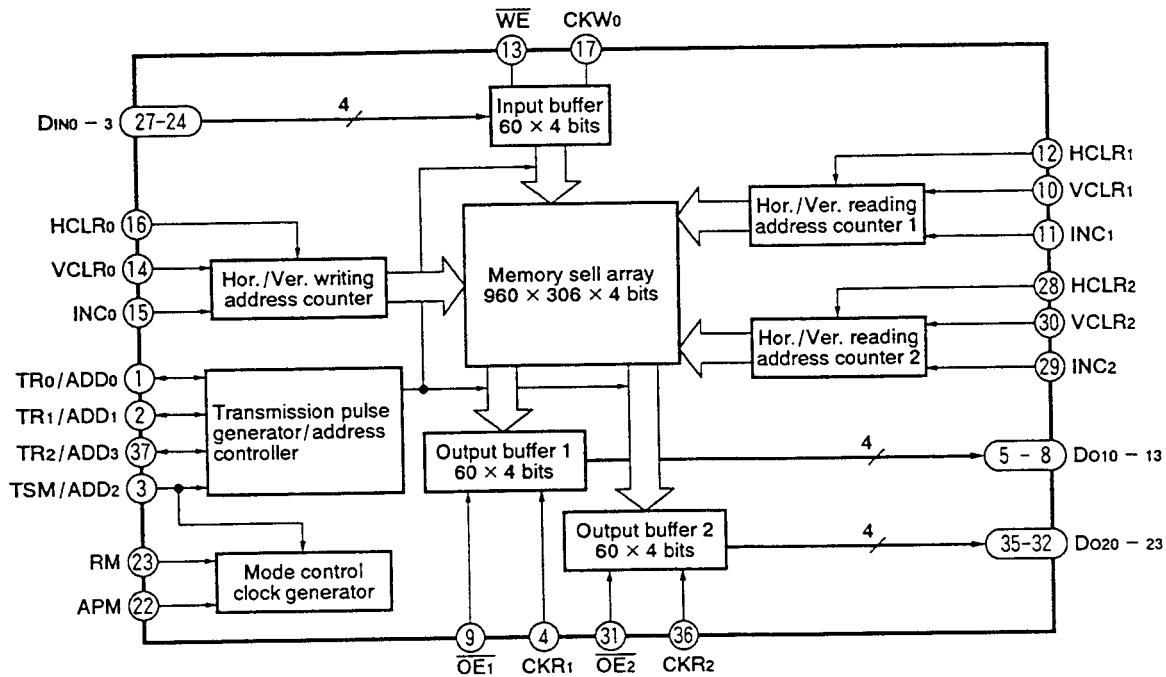
● Pin Arrangement



● Pin Function

No.	Pin name	I/O	Function	No.	Pin name	I/O	Function
1	TR ₀ /ADD ₀	I/O	Write port 0, transmission sync. signal / address input	20	Vss	—	Ground (0V)
2	TR ₁ /ADD ₁	I/O	Read port 1, transmission sync. signal / address input	21	NC	—	No connect
3	TSM/ADD ₂	I/O	Transmission sync. mode enable / address input	22	APM	—	Address preset mode enable
4	CKR ₁	I	Port 1, shift signal	23	RM	—	Recursive mode enable
5	Do ₁₀	O	Port 1, data output	24	DIN ₃	I	Port 0, data input
6	Do ₁₁			25	DIN ₂		
7	Do ₁₂			26	DIN ₁		
8	Do ₁₃			27	DIN ₀		
9	$\overline{OE_1}$	—	Port 1, output enable	28	HCLR ₂	—	Port 2, horizontal clear signal
10	VCLR ₁	—	Port 1, vertical clear signal	29	INC ₂	—	Port 2, line increment signal
11	INC ₁	—	Port 1, line increment signal	30	VCLR ₂	—	Port 2, vertical clear signal
12	HCLR ₁	—	Port 1, horizontal clear signal	31	$\overline{OE_2}$	—	Port 2, output enable
13	$\overline{WE}$	I	Port 0, write enable	32	Do ₂₃	O	Port 2, data output
14	VCLR ₀	—	Port 0, vertical clear signal	33	Do ₂₂		
15	INC ₀	—	Port 0, line increment signal	34	Do ₂₁		
16	HCLR ₀	—	Port 0, horizontal clear signal	35	Do ₂₀		
17	CKW ₀	—	Port 0, shift signal	36	CKR ₂	I	Port 2, shift signal
18	NC	—	No connect	37	TR ₂ /ADD ₃	I	Read port 2, transmission sync. signal / address input
19	Vcc	—	+5V power supply	38	Vss	—	Ground

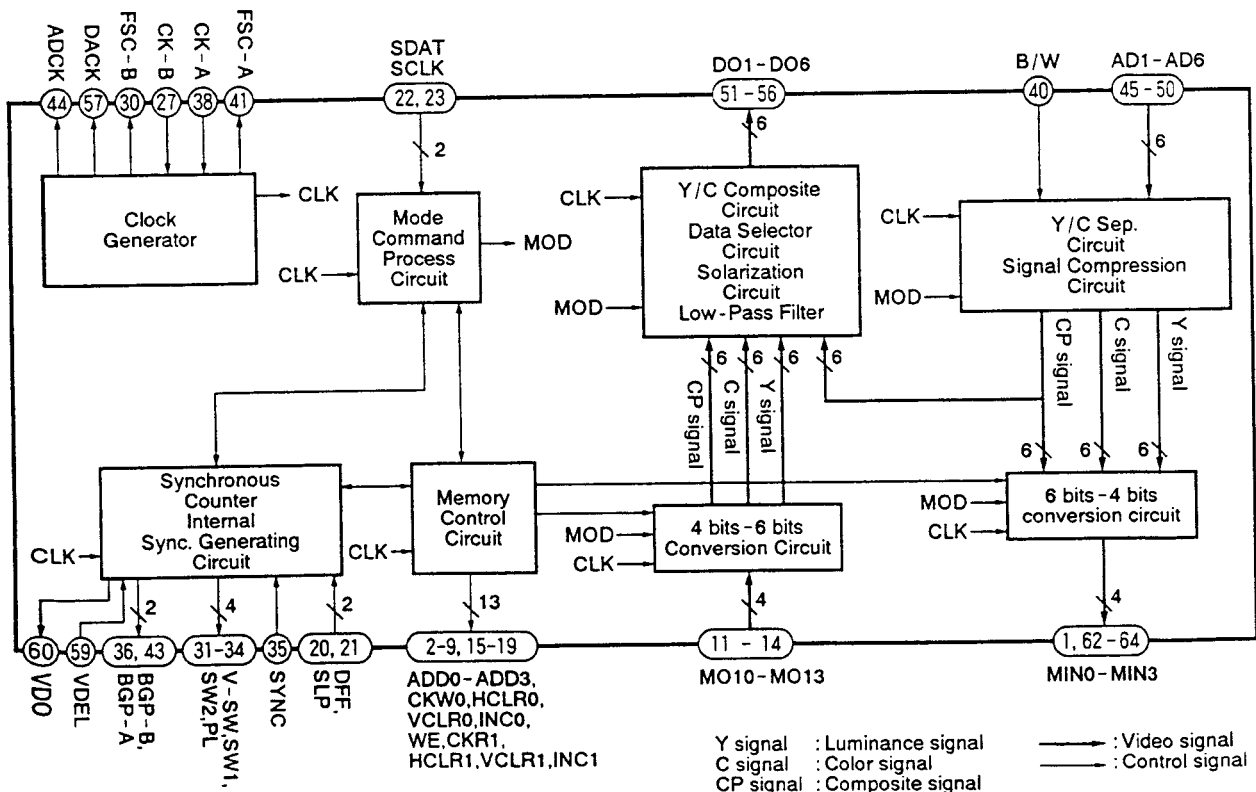
Block Diagram



MB86153APF

Digital special effect controller for TV/VTR

Block Diagram



● Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	MIN0		Video signal output (memory input)	31	SW1		Switching control of the main and sub pictures.
2	CKW0		Shift signal output for write port of the memory. Perform the clock operation in spite of the write operation.	32	SW2	O	
				33	V-SW		
3	HCLR0		Address pointer control output for write port of the memory (Horizontal clear signal)	34	PL	O	Picture in Picture mode indication output Picture in Picture mode: "L" Other mode: "H"
4	INC0		Address pointer control output for write port of the memory (Line increment signal)	35	SYNC	It	Composite sync. input of the main - picture
5	VCLR0	O	Address pointer control output for write port of the memory (Vertical clear signal)	36	BGP - B	O	Burst gate pulse output for the main - picture (Color burst section: "L")
6	WE		Input control signal for write port of the memory (Write enable signal)	37	NC	-	No connection
7	HCLR1		Address pointer control for read port of the memory (Horizontal clear signal)	38	CK - A	Ic	4fsc input for the sub - picture
8	INC1		Address pointer control for read port of the memory (Line increment signal)	39	CK - A0	O	4fsc amp. output for the sub - picture
9	VCLR1		Address pointer control for read port of the memory (Vertical clear signal)	40	B/W	It	Decision input of the color/black and white screen of the sub - picture
10	Vss	-	Ground (0V)	41	FSC - A	O	fsc output for the sub - picture (PLL input signal)
11	MO13		Video signal input (memory output)	42	Vss	-	Ground (0V)
12	MO12			43	BGP - A	O	Burst gate pulse output for the sub - picture (Color burst section: "L")
13	MO11			44	ADCK		Clock output for A/D converter
14	MO10			45	AD1		Video signal input (A/D converter output)
15	CKR1		Shift signal output for read port of the memory. Perform the clock operation at the read operation only.	46	AD2		
16	ADD2	O	Address preset output which are 4 - bits binary data. It selects a free block among 16 - division blocks of the write port.	47	AD3		
17	ADD1			48	AD4		
18	ADD0			49	AD5		
19	ADD3			50	AD6		LSB
20	DFF		Picture write timing count signal input at the slow mode.	51	DO6		Video signal output (D/A converter input)
21	SLP		Picture write timing signal input at the slow mode.	52	DO5		
22	SCLK		Mode command serial clock input	53	DO4		
23	SDAT	ISM	Mode command serial data input	54	DO3	O	
24	RES		Reset input (When "L" level is input, reset the internal circuit and it becomes analog through mode. Input "L" level when turning the power on.)	55	DO2		
				56	DO1		
25	TEST	Ic	Test terminal (+5V)	57	DACK		Clock output for D/A converter
26	Vdd	-	+5V power supply voltage	58	Vdd	-	+5V power supply voltage
27	CK - B	Ic	4fsc input for the main - picture	59	VDEL	ISM	Interlace control input
28	CK - B0	O	4fsc amp. output for the main - picture	60	VD0	O	Interlace control output
29	Vss	-	Ground (0V)	61	Vss	-	Ground (0V)
30	FSC - B	O	fsc output for the main - picture (PLL input signal)	62	MIN3		Video signal output (Memory input)
				63	MIN2	O	
				64	MIN1		

Note:
 It : TTL interface input
 Ic : CMOS interface input
 ISM : Schmitt trigger input

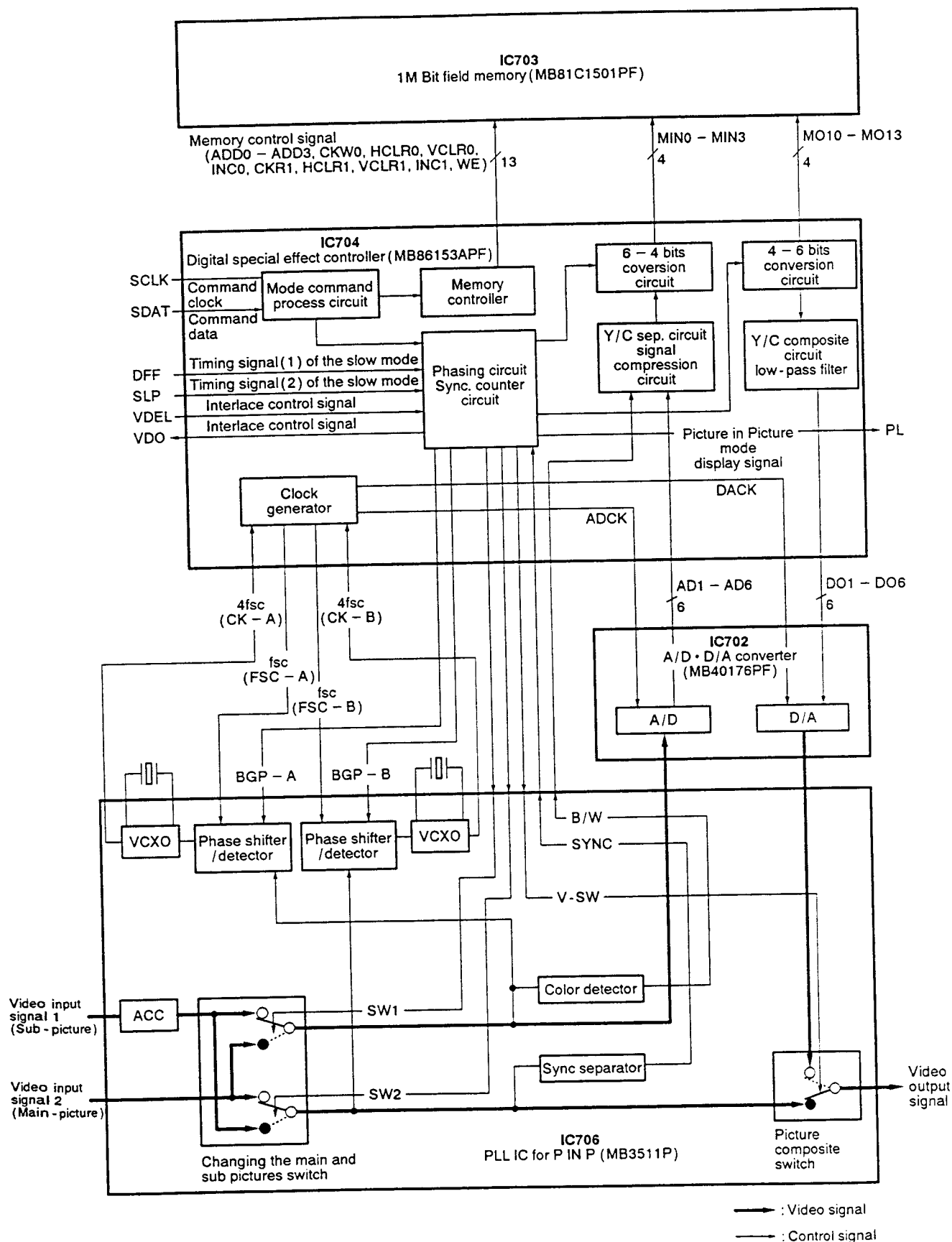
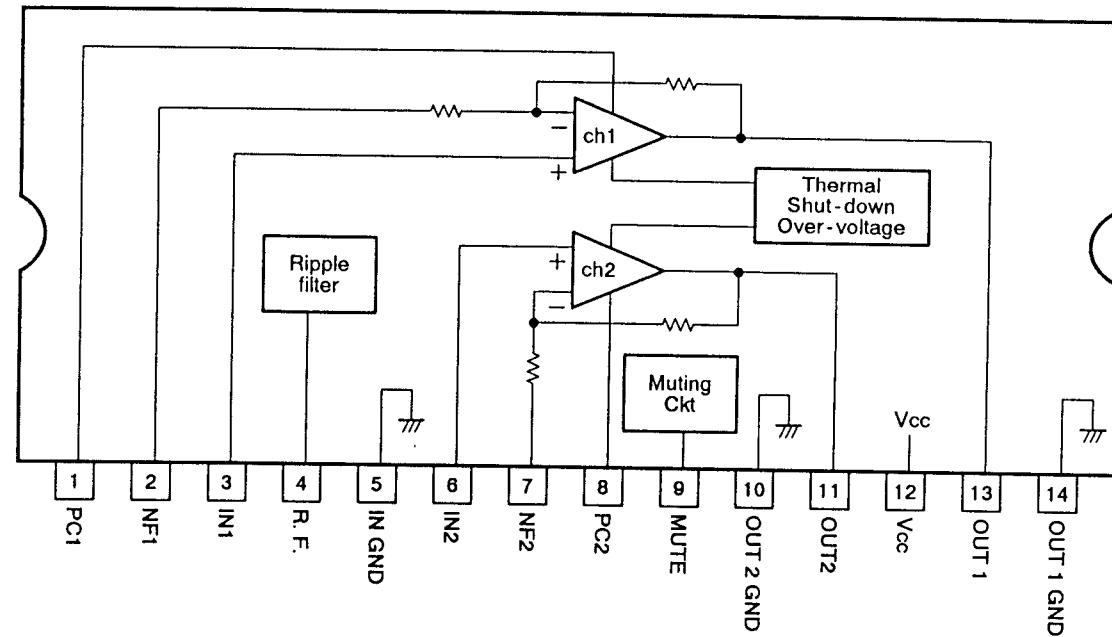


Fig. 12-1 IC correlation of the PINP assembly

■ LA4280

● Block Diagram



● Pin Function

No.	Pin Name	Function	No.	Pin Name	Function
1	PC1	Phase compensation (1)	8	PC2	Phase compensation (2)
2	NF1	Feedback (1)	9	MUTE	External mute
3	IN1	Input (1)	10	OUT2 GND	Output side ground (2)
4	R. F.	Ripple filter	11	OUT2	Output (2)
5	IN GND	Input side ground	12	Vcc	Power supply voltage
6	IN2	Input (2)	13	OUT1	Output (1)
7	NF2	Feedback (2)	14	OUT1 GND	Output side ground (1)

13. WIRING DIAGRAM

Reconnect any disconnected lead wires of the SD-P4053-K.
 Figs. 13-1 and 13-2 show the important points for connection of the lead wires. You may find that they were connected differently. Be sure reconnect the lead wires as they were.

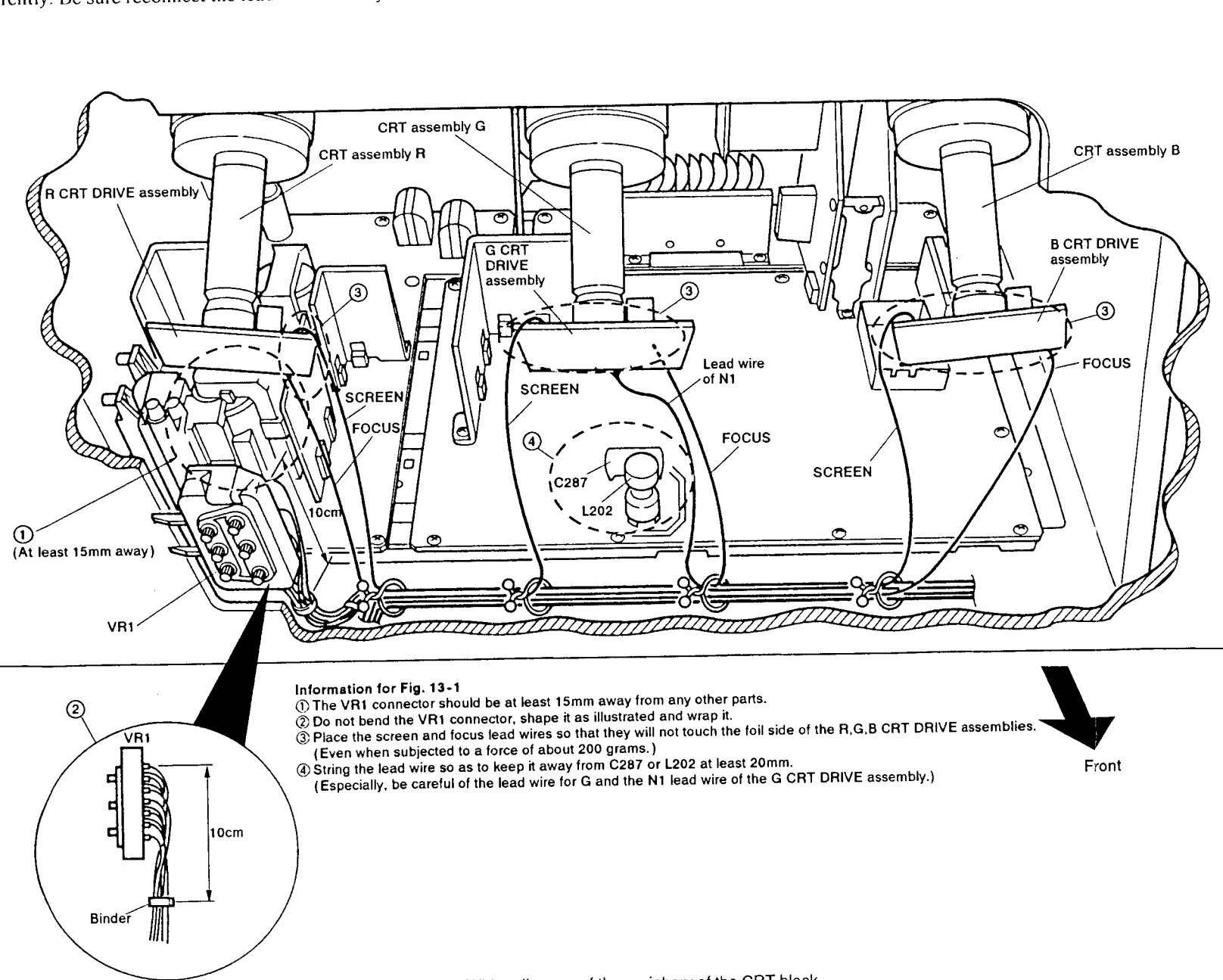


Fig. 13-1 Wiring diagram of the periphery of the CRT block

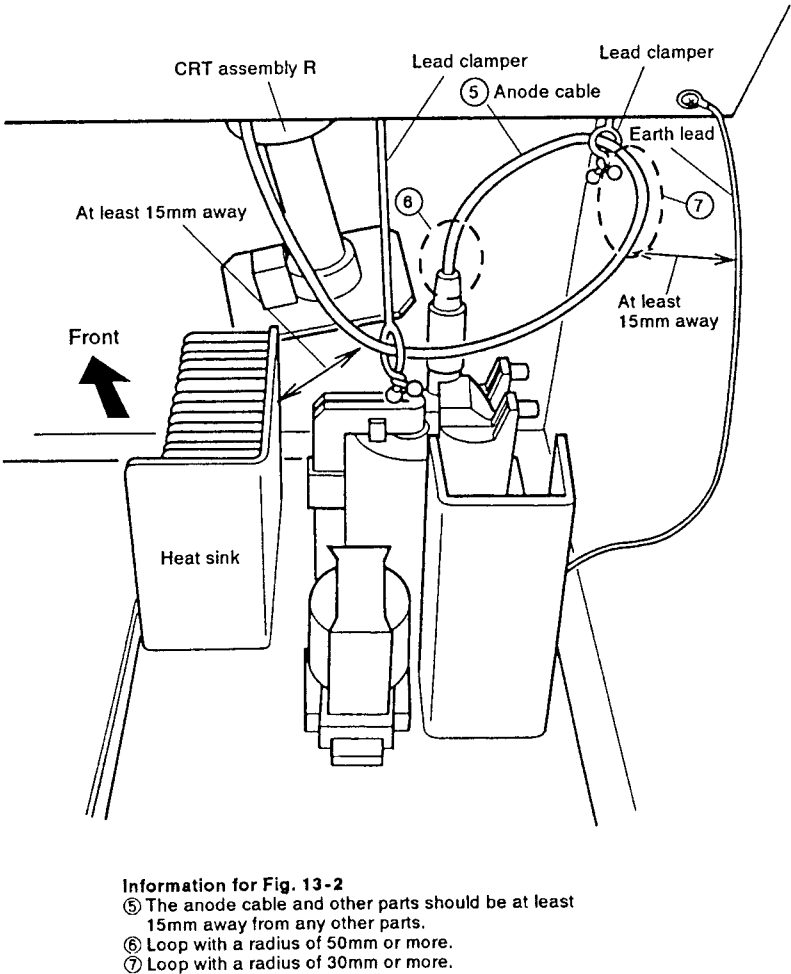


Fig. 13-2 Wiring diagram of the anode cable

Thank you for purchasing the PIONEER Projection Monitor Receiver.

If you have not read the precautionary instructions enclosed with these operating instructions, please do so before proceeding.

After learning how to operate the Projection Monitor be sure to keep this manual handy for future reference.

While the official name of the product is the "PROJECTION MONITOR RECEIVER", for the sake of brevity the text refers to it as the "Projection Monitor" or 'simply' the "Monitor".

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5	FEATURES	27	TV CHANNEL SELECTION
6	INSTALLATION	30	MULTI-CHANNEL TV SOUND (MTS)
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7	REMOTE CONTROL OPERATION RANGE	33	USING THE STATION LABEL FUNCTION
8	FRONT PANEL FACILITIES	34	PICTURE AND SOUND ADJUSTMENT
10	SYSTEM CONNECTION DIAGRAM	35	AV MEMORY
12	ANTENNA CONNECTIONS	36	DPO ADJUSTMENT
12	SYSTEM REMOTE CONTROL CONNECTIONS	37	HOW TO TURN THE SYSTEM MODE FUNC- TION ON AND OFF
13	SPEAKERS	38	TROUBLESHOOTING
		39	CARE OF YOUR PROJECTION MONITOR
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		40	SPECIFICATIONS

SD - P4053 - K



PROJECTION MONITOR RECEIVER

SD-P4053

NTSC

Operating
Instructions

IMPORTANT NOTICE

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO WET LOCATIONS.

The model number and the serial number of this Projection Monitor are located on the rear panel.

Please write the serial number on the enclosed warranty card and keep it in a safe place for future reference.

NOTE:

There are no user serviceable parts inside the Projection Monitor.

IMPORTANT



The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

PRELIMINARY INSTRUCTIONS

WHERE TO PUT THE MONITOR

LIGHTING

Bright lights or direct sunlight will dull the picture. Position the monitor so that the screen faces away from windows.

AIR CIRCULATION

Leave space for air to circulate behind the monitor. Keep it away from curtains and other furnishings that could block ventilation.

HEAT DAMAGE

Damage may occur if you leave the monitor in direct sunlight or near a heater.

OPTIMUM VIEWING DISTANCE

10 to 23 feet is the range recommended for viewing comfort.

POWER SOURCE

This Projection Monitor operates on AC 120 V, standard household voltage.

NEVER CONNECT THE PROJECTION MONITOR TO OTHER THAN THE SPECIFIED VOLTAGE, OR TO DIRECT CURRENT.

POWER OUTLET

- This monitor requires an AC 120 volt polarized outlet. The plug will fit only one way. If it will not go in, turn it around and try the other way. If you are still unable to insert the plug, call an electrician to replace the wall socket.
- A damaged cord or plug is a fire hazard. If you notice wear or damage, have it fixed by qualified service personnel.
- Plug directly into the wall socket. Do not use extension cords or other receptacles. Do not overload the outlet: it is a fire hazard.

NOTE:

- *Never remove the back cover of the Projection Monitor as this will expose you to dangerously high voltage and other hazards. If the monitor does not operate properly, unplug it and refer to page 38.*

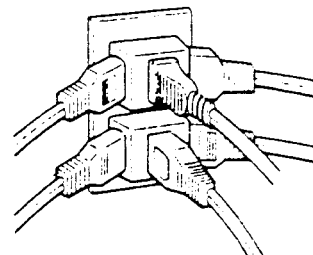
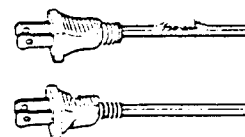
POWER-CORD CAUTION

Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the monitor, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed in such a way that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord regularly. If you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

• POLARIZED PLUG



• DANGEROUS



FEATURES

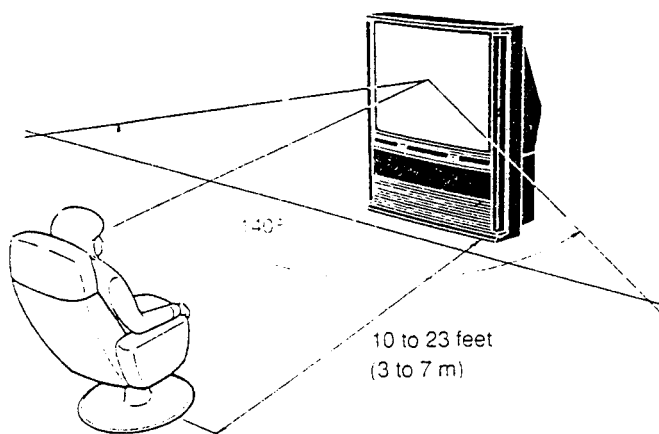
Sharp, Clear Images with 730 line Horizontal Resolution (Video input)

- A 10 MHz video bandwidth and Dynamic Picture Control circuitry provide sharp detail and crisp outlines.
- New, high-resolution picture tubes improve focusing performance by 20%.
- Dynamic focusing circuit enhances resolution at picture edges.

Wide Viewing Range Screen

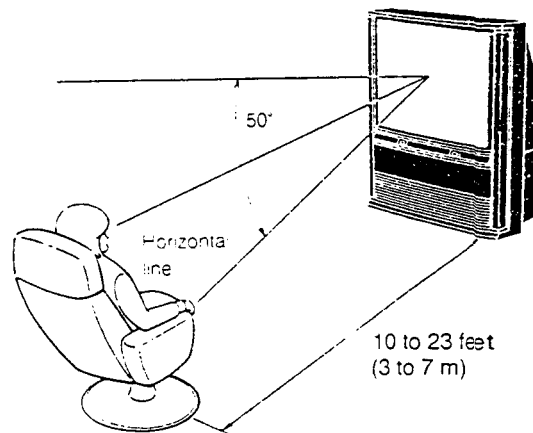
- 140° Horizontal Viewing Angle and 50° Vertical Viewing Angle.

Best Horizontal Viewing Angle



Best Vertical Viewing Angle

Watch from at least 10 feet (3 m) away from the screen.
(Optimum viewing distance is 10 to 23 feet.)



You may sometimes see double images or rainbowlike effects if you view from outside of the recommended area shown here.

Amazingly Bright Picture Intensity of 600 Foot-Lambert

- New, highly efficient lens system passes more light.
- High-power picture tubes employ advanced anode stabilization circuitry and 6000 pF capacitors.
- Newly developed phosphorescent screen for the picture tubes.

Much Greater Contrast with Extended Gradation

- Dynamic Black Level Correction Circuit for true black reproduction under all conditions.

Equipped with the Digital Picture-in-Picture — 1, 4 or 9 sub pictures can be displayed on the screen simultaneously

- This function lets you enjoy various display mode of sub pictures.

Microcomputerized Dynamic Picture Optimizer (DPO)

- DPO (Dynamic Picture Optimizer) circuit detects room light and optimizes the TV picture accordingly.

Equipped with the VNR (Video Noise Reduction) system for reducing noise on the screen while watching a TV program or prerecorded video cassette tape

- This system reduces noise on the screen, allowing you to enjoy your favorite programs with improved picture quality.

AV Memory

- After adjusting the picture and sound quality, you can store your settings in "AV memory". Two AV memory settings can be stored and recalled.

High fidelity color reproduction and brighter whiteness produced by a newly developed Linear White Circuit

- The linear white circuit adjusts the blue phosphor characteristics and aligns the Red, Green and Blue drive circuits. This allows the monitor to reproduce brighter whites and natural fresh colors.

Newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field with any video source including TV programs

- Dynamic theater sound effects for movies and sports programs, natural sound localization for music programs, and a natural sound modified to produce stereo-like sound. Simulated stereo sound is included in the dynamic sound expansion system.

INSTALLATION

ANTENNA CONNECTION

Connect to an outdoor antenna, cable box or centralized antenna terminal (see page 12 for details).

MOUNTING

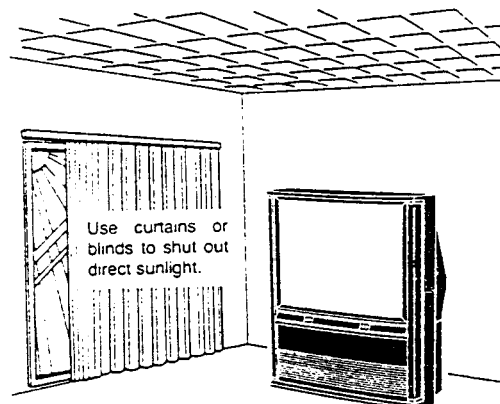
The Projection Monitor is designed to be placed on the floor or on a sturdy platform. The mounting surface should be flat and steady.

INSTALLATION PRECAUTIONS:

Place of Installation

- When the Projection Monitor is operating, it is cooled by air-flow through ventilation holes in the rear and bottom. Therefore, avoid placing it in a location where the cooling air-flow is hindered (e.g. against a wall).
- Avoid places subject to extremely high temperatures or humidity, or to temperatures of 41 °F (5 °C) or lower. Also avoid dusty places.
- Do not set the Projection Monitor in an unstable location (such as on a shaky or tilted platform).
- When setting the Projection Monitor on a floor made of soft material, make sure that the floor is not damaged by the weight of the Projection Monitor.
- If the room temperature suddenly rises (or if the Projection Monitor is moved from a cool place to a hot place), condensation may form on the lenses, resulting in picture distortion or color fading. If this occurs, simply wait a while (with the POWER SWITCH on) and the condensation will disappear.

Downward spot lights or fluorescent lights in an overhead "Honey-comb" prevent direct illumination of the screen.



Cover shiny surfaces (floor and walls) with non-reflective materials. (carpet, rugs, wallpaper, etc.).

OPERATING PRECAUTIONS

Keep away from magnetic fields

The picture may be distorted if strong magnetic fields are nearby. External speakers should be set at least 2 feet (60 cm) away from the Projection Monitor. Electric fans and other motor driven appliances and toys may also be sources of magnetism.

When moving the monitor

Pull out the plug and move the monitor carefully. Be particularly careful not to bump or scratch the screen. To avoid damage to the caster wheels you may need to lift the monitor when going over irregular surfaces.

Install in a flat, steady place

Do not put the Projection Monitor on a surface that is tilted, unsteady or prone to shake or vibrate. A shaky or slanted platform is dangerous.

Adjust room illumination

Excessively bright or dim lighting may strain your eyes. Draw the curtains if necessary to shut out direct sunlight.

When not using the monitor for a long time

For safety, unplug the power cord when leaving the monitor turned off for a long period of time.

Condensation and picture blurring

- You may see a blurred picture if the monitor is moved from a cool to a warm location or if room temperature rises very rapidly. This occurs when moisture from the air condenses on the optical parts.
- The picture will return to normal if you leave the monitor turned off for 1 or 2 hours, then turned on.
- A gradual change in temperature can prevent condensation from forming.

A word about still pictures

- Do not project a still picture on your Monitor for a long period of time.
(For example: when using your Monitor for video games, monitoring your personal computer, or while playing back videodiscs.) This can adversely affect the monitor's CRT. If this cannot be avoided, reduce the contrast of the picture in order to minimize any damage which might occur.

INSERTING BATTERIES IN THE REMOTE CONTROL UNIT

You will find the remote control unit packed inside the projection monitor box. Open the remote control unit and insert the batteries. Follow the procedure below:

- 1 Open the battery compartment on the rear of the remote control unit. Press down with your thumb while sliding the lid outward.
- 2 Note the polarity (+ and -) markings in the case. Insert the supplied batteries so that they match the markings.
- 3 Close the lid by sliding it back in until it clicks into place and press the RESET button with the tip of a ballpoint pen. The remote control unit is now ready to use.

Battery Replacement

If the TRANSMIT/LEARN indicator does not light when you press a key, try pressing the RESET button and reattempting your command. If the indicator still does not light, the batteries are low and should be replaced as soon as possible.

Be sure to press the RESET button after the batteries are replaced and the battery compartment cover is closed.

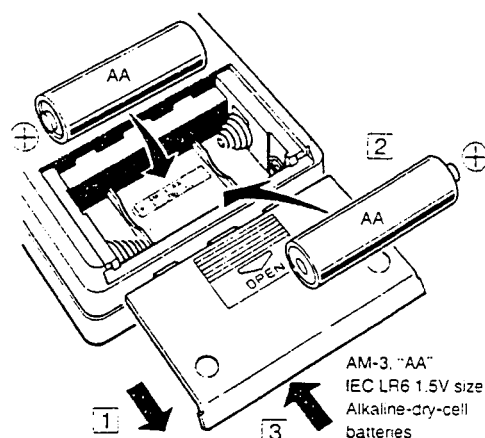
(Even when the RESET button is pressed, the programmed signals will not be erased.)

NOTE:

- The remote control unit's power switch is connected to the battery compartment cover. The unit will not operate without the cover even if the batteries are loaded, and memory will only be retained for approximately 15 minutes (even if the batteries are loaded.)

Never close the cover when the batteries are not loaded. The programmed commands will be lost within a few seconds if you do so.

INSERTING BATTERIES



Incorrect use of batteries may lead to leakage or rupture. Always be sure to follow these guidelines:

A.

Always insert batteries into the battery compartment correctly matching the positive + and negative - polarities as indicated inside the compartment.

B.

Never mix new and used batteries.

C.

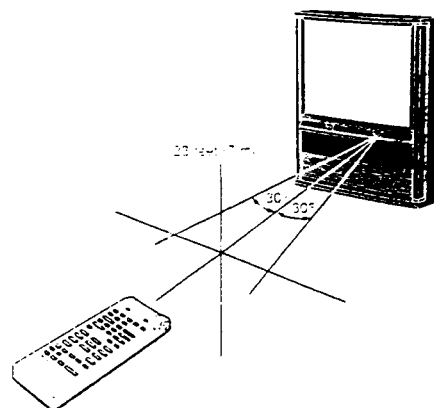
Batteries of the same size may have different voltages, depending on their type. Do not mix different type of batteries.

REMOTE CONTROL OPERATION RANGE

- Point the remote control unit toward the front of the Projection Monitor when you press any of the control keys.
- The remote control unit should be effective at distances of up to about 23 feet (7 m) from the Projection Monitor and at angles of up to about 30 degrees from a line perpendicular to the front panel.
- Furniture and other obstacles may block the infrared light beam so that it cannot reach the sensor on the Projection Monitor's front panel.
- If there is no response even when the remote control is used directly in front of the monitor, the dry cell batteries may need replacement.
- Performance of the remote control unit is adversely affected by strong fluorescent light. Keep such lights away from the sensor window in particular.

NOTE:

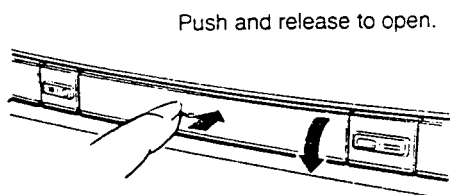
These figures are general and do not necessarily apply to programmed commands.



FRONT PANEL FACILITIES

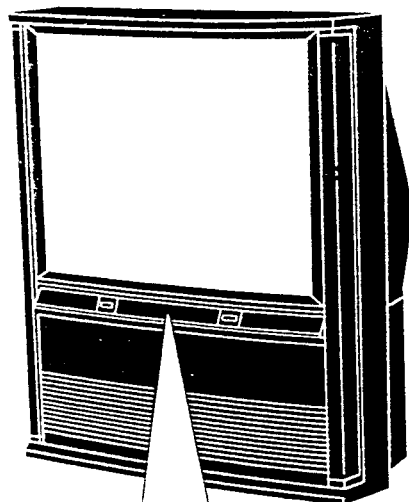
A flip-down door conceals the control panel. Push gently and release to open the door.

To close the door, lift it back up into place.



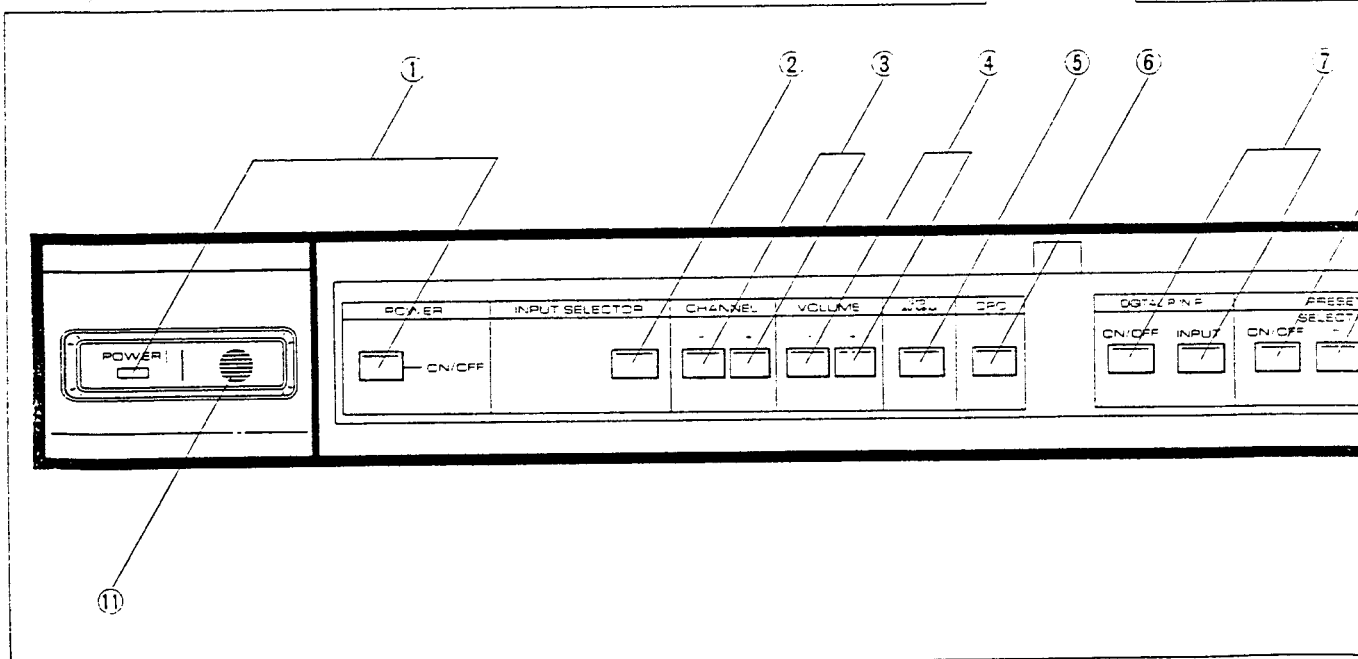
NOTE:

- If you accidentally pull the door open, it may not shut properly. Push in when shutting the door to restore it to normal operation.



Control Panel

- ★ Use the remote control unit to operate most functions (see pages 14 to 23).



Attention

The Projection Monitor Receiver will not function properly in the following cases:

- Lightning storms.
- High static electricity environment.
- Poor voltage regulation in the power source.

If the Projection Monitor does not operate properly, reset it as follows.

- ① Unplug from the power supply for approximately 1 minute.
- ② Plug the power cord in again to reset it.

FRONT PANEL FACILITIES

① POWER SWITCH AND INDICATOR

Press once to turn on the power. Press again to turn the power off. The POWER indicator lights up when the power is on. This unit is equipped with an Auto OFF circuit. 30 minutes after the input signal ceases to be supplied (for example, the TV channel being received stops broadcasting), the power automatically turns off.

② INPUT SELECTOR BUTTON

Press to select your program source: TV, LD player, VIDEO 1, VIDEO 2 or VIDEO 3. Each press of the button changes the selection to the next source.

③ CHANNEL BUTTONS

Press plus (+) or minus (-) to tune to a higher or lower channel. Only those channels in tuner preset can be tuned in by this method. For details, see page 27.

④ VOLUME BUTTONS

Press the plus (+) or minus (-) button to raise or lower the volume.

⑤ STD/AV MEM (Standard/AV Memory) BUTTON

Press to switch between the standard (STD) picture/sound settings and the AV MEMORY 1 and AV MEMORY 2 settings which have been input with the MENU SET button.

⑥ DPO (Dynamic Picture Optimizer) BUTTON

Press to turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 36.

NOTE:

•When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.

⑦ DIGITAL P IN P (Picture-in-Picture) BUTTONS

ON/OFF: Press to turn the Picture-in-Picture function on and off.

INPUT: Press to select the sub screen program and one sub-picture mode will be selected.

•For details on the Picture-in-Picture function, refer to the remote control unit's operating instructions.

NOTES:

•If only the **[S-VIDEO]** LD and VIDEO jacks of the LD player and/or VCR are connected to the Projection Monitor, the Picture-in-Picture function will not operate when these buttons are pressed.

•When the P IN P button is pressed and held for more than 2 seconds, The Projection Monitor will go into its demonstration mode. "P IN P DEMONSTRATION" will appear on the screen while Picture-in-Picture demonstration mode is engaged.

•The Picture-in-Picture demonstration mode will be cancelled if any other operation key or operation button is pressed; and the Projection Monitor will enter the selected operation mode.

⑧ PRESET MENU BUTTONS

These buttons are used to perform the following functions: color convergence, tuner presetting, TV-CATV selection, relabeling input displays, system mode setting and AV memory storage. For details, refer to the description of each function.

ON/OFF: Press to turn the Menu (functions above) on and off. When the button is pressed on, the function names CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE, TUNER PRESET and SYSTEM MODE are displayed on the screen.

SELECT/ADJUST (+/-): Press to select the desired function. The selected function is displayed in red.

SET: Press to activate the selected function.

NOTE:

•Refer to page 37, if you wish to use the SYSTEM MODE function.

⑨ INPUT JACKS (VIDEO-3)

These front panel jacks are convenient for connecting portable VCR, a video camera recorder or other temporary video source to the monitor. When the audio signal of the source to be connected is monaural, connect the L (MONO) jack.

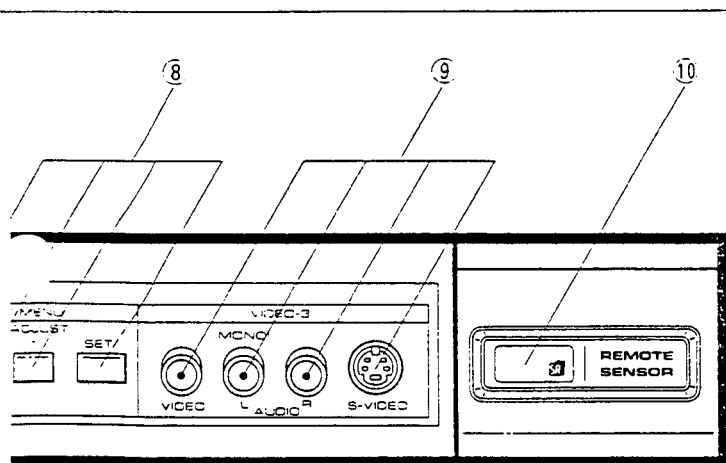
Use the S-VIDEO jack when connecting an S-VHS or ED Beta VCR, or an LD player which has an S-output jack.

⑩ REMOTE CONTROL SENSOR

This sensor picks up infrared signals from the remote control unit.

⑪ DPO SENSOR

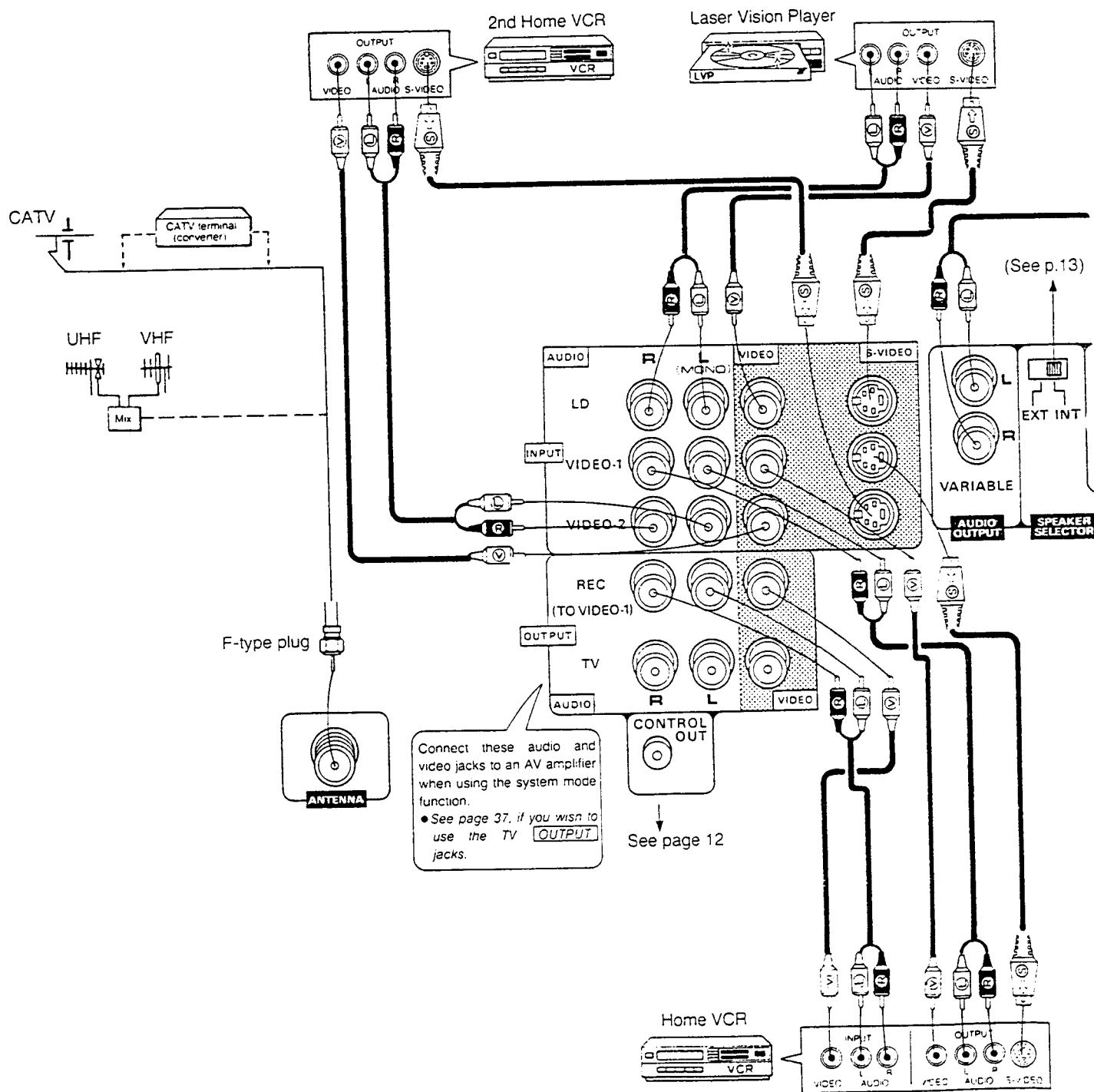
This sensor detects ambient lighting for the DPO (Dynamic Picture Optimizer) circuit which optimizes the TV picture accordingly.

**NOTE:**

•On rare occasions, an electrical discharge may occur inside the CRT. It makes a short, sharp pop and results in a 1 or 2 second power failure. The power will return automatically. You need not worry about the discharge; it is not a defect and will disappear with regular use. The Picture-in-Picture function will be cancelled automatically if a power failure occurs when this function is engaged.

SYSTEM CONNECTION DIAGRAM

Refer to the instructions for your VCR, LD Player and other components for details concerning connections.
Turn off all components before making connections.



SYSTEM CONNECTION DIAGRAM

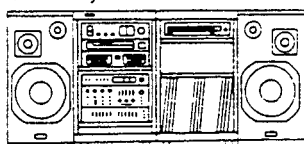
INPUT JACKS

These are 4 sets of inputs for VCRs, LD Players and other video sources. Use RCA-type pin plug cords (the same as those used in hi-fi systems) for connections. When the audio source to be connected is monaural, connect the source to the L-(MONO) jack.

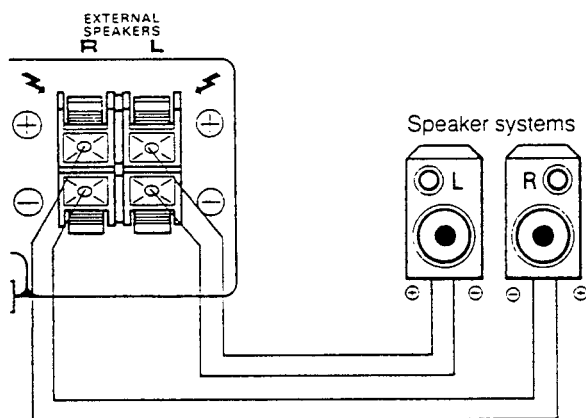
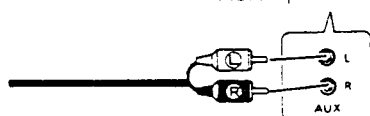
NOTE:

- These video input jacks will be cut automatically when connecting both RCA-type pin plug cords and **S-VIDEO** cords at the same time.

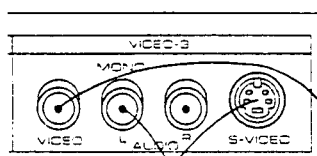
Stereo system



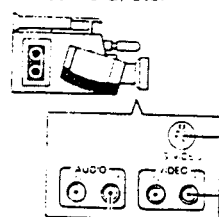
AUX input terminal



Control panel



TV camera, etc.

**S-VIDEO INPUT JACKS**

Use the **S-VIDEO** VIDEO jacks (VIDEO-1 to 3) to input S-VHS or ED Beta VCR video signals.

Use the **S-VIDEO** LD jack to input signals from an LD Player which has an S-output jacks.

NOTE:

When making S-VIDEO connections for either a VCR or an LD Player, be sure to keep the standard VIDEO and AUDIO pin plug cords connected between the VCR/LD Player and the Projection Monitor. If only the **S-VIDEO** LD and VIDEO jacks are used connected, the Picture-in-Picture function cannot be used.

OUTPUT TO VIDEO-1 REC-JACKS

These are used for connecting the monitor to a VCR for recording, or for linking it to another monitor. These jacks output the video and audio signals of the source currently selected by the INPUT SELECTOR.

Connect these output jacks to your VCR's inputs. Connect the VCR's outputs to the monitor's VIDEO-1 inputs. Connect the VCR's outputs to the monitor's VIDEO-1 inputs if you have the VCR.

ATTENTION

- If a VCR is connected to the VIDEO-2 inputs, then that VCR should not be connected to these outputs. The design of some VCRs causes an oscillation feedback loop in such situations.

CONTROL OUT JACKS

This jack is used to extend remote control to other PIONEER equipment bearing the  (System Remote) mark. Use mono miniplug cords (available at audio and video shops) to connect the monitor's CONTROL OUT jack to the CONTROL IN jack of the other component. The other component can be connected to still another in the same manner, from the CONTROL OUT jack of one to the CONTROL IN jack of the other. If a component has only a CONTROL IN jack then put that component last in the sequence. Otherwise, you may connect them in any order that is convenient. If another component has the  mark and its own remote control sensor, then the CONTROL OUT/IN jack connection is not required. However, this connection may improve the response of remote control, since you will not need to point the remote control unit at different components (see page 12).

AUDIO OUTPUT (VARIABLE) JACKS

These jacks output the audio signal from the video program material currently selected for viewing on the monitor. Connect these audio output jacks to the AUX input jacks of your stereo system. You can then use the remote control unit to adjust the volume.

NOTE:

- Signals from these output jacks will be affected by AV memory, bass and treble tone adjustments using the STD/AV MEM key, SOUND key, ADJUST ◀ and ▶ key, as well as the dynamic sound expansion function using the D-SOUND EXPANSION key.

SPEAKER SELECTOR SWITCH

This switch lets you select either the built-in speakers or external speakers (see page 13).

NOTE:

- Set to INT when using the built-in speakers. Do not use the INT setting if using speakers connected to the EXTERNAL SPEAKERS terminals on the rear panel. When set to INT no sound is output from the external speakers.
- Set to EXT when using external speakers (or if you will be directing the output through your stereo system). When set to EXT no sound is output from the internal speakers.

EXTERNAL SPEAKERS TERMINALS (R, L)

For connection of external speakers (purchased separately).

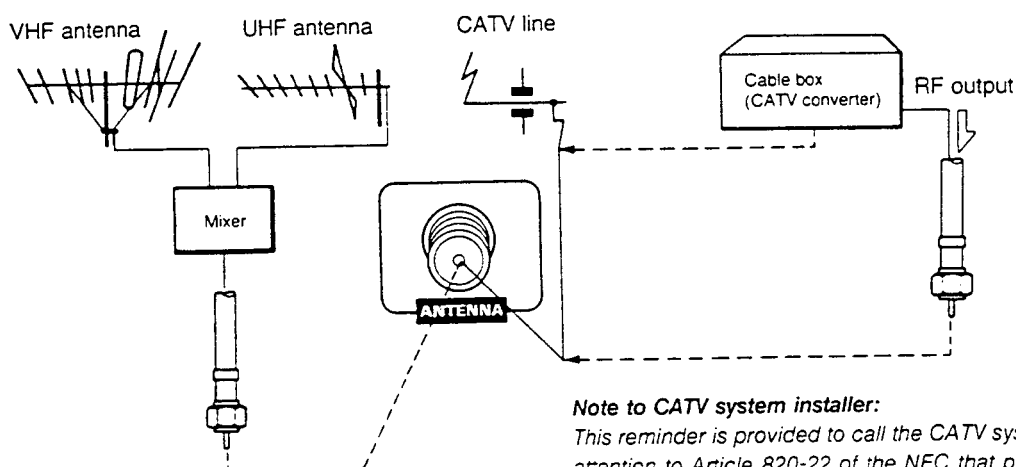
ANTENNA CONNECTIONS

A good color picture depends on a good TV signal. So does good multi-channel (stereo and SAP) sound. To ensure the highest signal quality, choose an antenna that suits your reception area and have it properly installed. Ask your dealer for advice. If you subscribe to cable or have a central antenna for your building, then you will not need an external antenna. However, proper connections from the TV signal source to your monitor are essential. Please refer to the instructions below.

USING THE ANTENNA CABLE CONNECTOR

The cable connector plugs into the monitor's antenna terminal. This monitor is designed to be connected to a 75 ohm coaxial cable using an F-type plug.

Connect the cable box RF output cable or the antenna cable connector into the ANTENNA terminal.

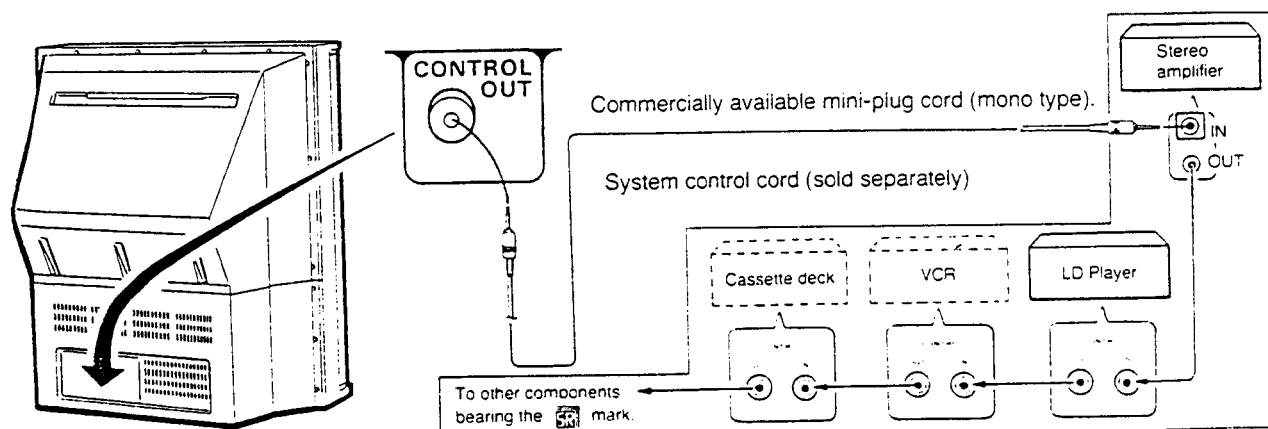


Note to CATV system installer:

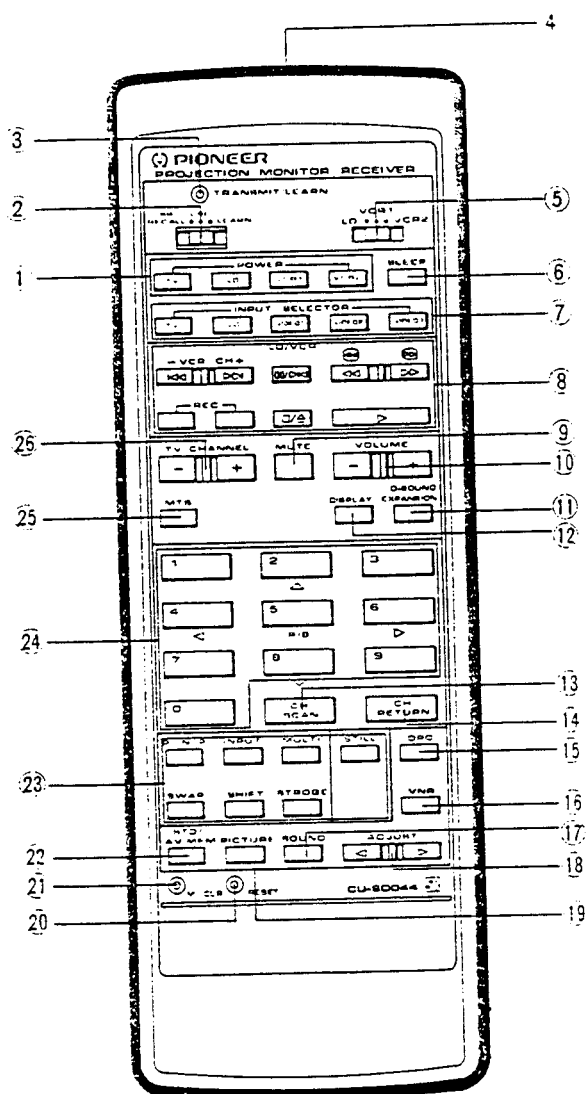
This reminder is provided to call the CATV system installer's attention to Article 820-22 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground should be connected to the grounding system of the building, as close to the point of cable entry as practical.

SYSTEM REMOTE CONTROL CONNECTIONS

Many PIONEER  audio and video components can be connected to provide remote control for an entire audio/video system. Use mini-plug cords (monaural) which may be purchased in most audio and video stores. Connect from the CONTROL OUT jack of one component to the IN jack of the next component.



REMOTE CONTROL UNIT FACILITIES

**1 POWER (TV/LD/VCR1/VCR2)**

Turns the power of the monitor on and off. Also turns the power of LD Players and VCRs bearing the mark on and off.

- Store the POWER control command code from other remote control units to the VCR2 key. For details, see pages 20 and 21.

2. LEARN MODE Switch

SR RECALL: Use this setting to command PIONEER equipment marked with the mark (No memory function).

USE: In this mode the remote control unit is able to command other components with commands you input using the LEARN function, as well as PIONEER equipment.

LEARN: This setting activates the capacity of the unit to "learn" and store command codes from other remote control units.

3 TRANSMIT/LEARN Indicator

Flashes when commands are being sent in the USE or SR RECALL modes or the LEARN MODE selector. In the LEARN mode, however, it:

- lights when ready to accept programming information, and
- flashes to signal that you have chosen an incorrect key to store a programmed command, or when the memory is full.

4 Transmitting and Remote Control Code Receiver Window

Transmits remote control signals using infrared rays. When memorizing a remote control code, the window will function as an infrared receiver.

5 TRANSMIT MODE Switch

Set to the position that corresponds to the component you wish to operate.

LD: To control the LD Player.

VCR1: To send commands to VCR 1.

VCR2: To send commands to VCR 2.

- If you wish to use LD/VCR control keys for VCR2 remote control, store command codes from other remote control units to the LD/VCR control keys. For details, see pages 20 and 21.

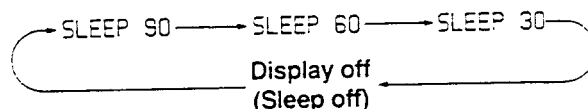
6 SLEEP

Press to set the sleep timer.

The switching sequence is 90, 60, 30 (in minutes) and OFF (cancel). The screen will confirm your setting and the projection monitor will shut down when that amount of time has elapsed.

While the timer is working, the auto-off facility will not function.

The POWER OFF display will appear on the screen approximately 1 minute before turning off the power. The POWER OFF display will flash alternately red and black until the power is turned off.



Each time the SLEEP key is pressed, the sleep time decreases in intervals of 30 minutes (90→60→30→0 (Off)). When the SLEEP key is held down, the sleep time decreases in one minute intervals.

For example, to set sleep time to 40 minutes:

Press the SLEEP key once ('90' is displayed).

Press the SLEEP key again and hold it ('60' is displayed briefly, then the display decreases in 1 minute intervals: 59, 58, 57, etc.).

Release the SLEEP key when the display reads '40'.

7 INPUT SELECTOR (TV/LD/VIDEO 1/VIDEO 2/VIDEO 3)

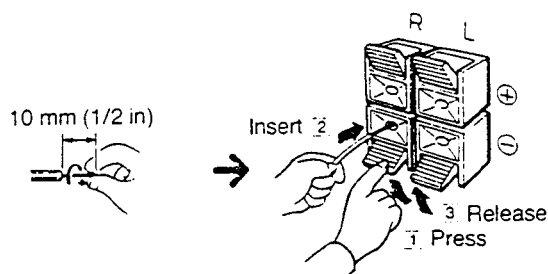
Press the key to select the source you wish to watch. The screen will display your selection.

8 LD/VCR Control Keys

If your LD Player or VCR (Video Cassette Recorder) is a PIONEER model bearing the mark, you can control the component using these keys. For details, see page 23.

SPEAKERS

CONNECTING EXTERNAL SPEAKER WIRES



Strip each wire so that about half an inch is exposed. Twist the core.

Turn off the power of the monitor and connected equipment. Press the lever, insert the wire, and release the lever to lock the wire into place. Pull gently on the wire to check that it is securely connected.

Do this for each wire. Be careful to connect the right speaker's plus and minus terminal wires to the "R" "+" and "-" terminals. Likewise, connect the left speaker's plus and minus terminal wires to the "L" "+" and "-" terminals.

Precautions

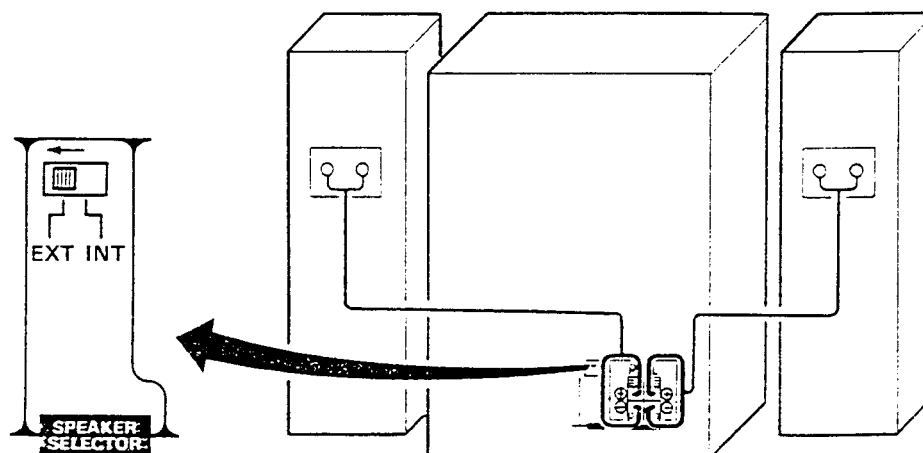
- Make sure that exposed wires do not protrude and touch each other.
- If you do not hear a normal stereo image when listening to a stereo program, it may be because the "+" and "-" connections are reversed for one of the external speakers.
- Make sure that the right speaker is connected to the "R" terminals and the left speaker to the "L" terminals. Make sure that each speaker's two wires are properly connected to the appropriate "+" and "-" terminals.

NOTES:

- Use speakers with an impedance rating ranging from 8 ohms to 16 ohms.
- Ordinary speakers are not magnetically shielded and may disturb the picture if placed too close to the monitor. If you notice a problem, move the speakers about 2 feet (60 cm) away from the monitor.

SPEAKER SELECTOR SWITCH

Set this switch to the INT position if you will be listening to the built-in speakers. If you have connected external speakers (or if you will be listening through your stereo system), then you can turn off the built-in speakers by setting the selector to the EXT position.

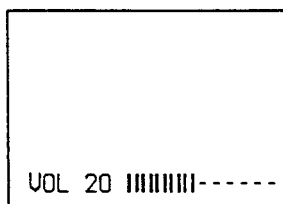


REMOTE CONTROL UNIT FACILITIES

9. MUTE

Press to temporarily turn off the sound. Press again to return to the previous volume level. This is useful, for example, when answering telephone.

The volume display will turn red while the mute function is engaged. If the mute function is left on for over approx. 10 minutes, the function will be cancelled automatically, and the volume level will be reset to 0. The volume display will disappear from the screen when the mute function is cancelled.

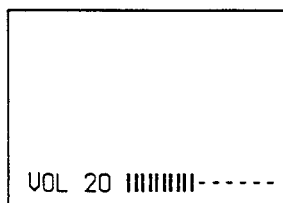


10. VOLUME +, -

Press the + key to increase the volume, and the - key to decrease it. Volume adjustment will appear on the screen as numbers and a bargraph. '63' indicates the maximum volume level.

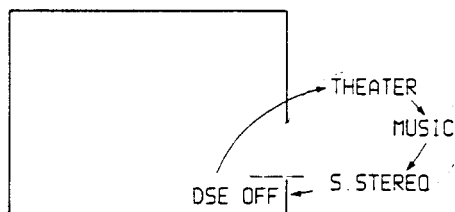
The display will disappear from the screen after 4 seconds.

* Volume display will change color automatically according to the selected input mode.



11. D-SOUND EXPANSION (Dynamic Sound Expansion)

Press once to display the current channel and/or other information on the screen approx. 4 seconds.



12. DISPLAY

Press once to display the current channel and/or other information on the screen.

13. CH SCAN (Channel scan)

Press to display 4 (or 9) memorized TV stations on the split screen at the same time. After pressing the CH SCAN key, use the MULTI key to select 4 station display mode or 9 station display mode.

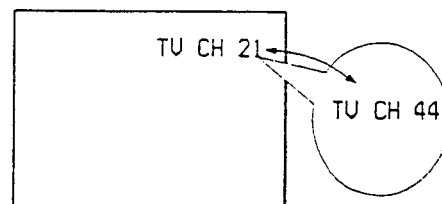
Channel Scan Features

When 4 screen or 9 screen mode is selected, use this feature to select one of the television stations currently displayed for full-screen viewing.

Press the Channel call 10-key that correspond to the channel that you wish to watch.

14. CH RETURN (Channel return)

Press to switch between the current channel and the channel you were watching immediately before. This is useful, for example, if you wish to switch back and forth between two sporting events.

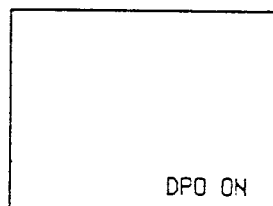


15. DPO (Dynamic Picture Optimizer)

You can turn DPO on or off as desired. When DPO is on, it automatically adjusts the picture to compensate for room illumination. For details, see page 36.

NOTE:

• When the DPO button is pressed and held for more than 2 seconds, the linear white system will be turned off and "LINEAR WHITE OFF" will appear on the screen. The linear white system will resume operation approx. 4 seconds after the DPO button is released.

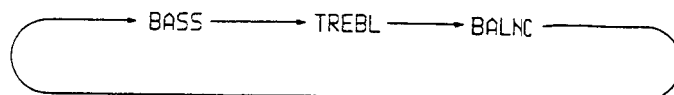


16. VNR (Video Noise Reduction)

You can turn VNR on or off as desired. When VNR is on, the noise on the screen is reduced. For details, see page 17.

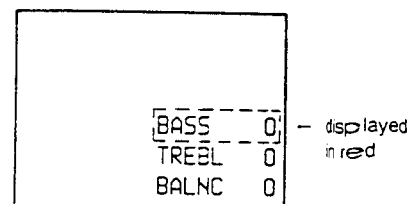
17. SOUND

Press to select the sound parameter to be adjusted.



18. ADJUST

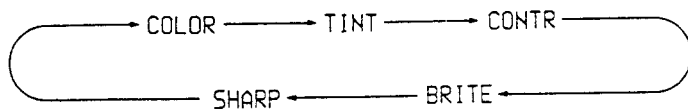
Press the > key to increase the value of the item currently selected using the PICTURE key or SOUND key, and the < key to decrease it.



example: SOUND ADJUST display

19 PICTURE

Press to select the picture parameter to be adjusted.

**20 RESET Button**

Press to reset the microcomputer in the remote control unit to its initial mode in the following cases:

- When replacing the batteries.
- If the remote control unit will not function properly when the operation key is pressed, etc.

NOTE:

On rare occasions, an electrical discharge may occur inside the unit, causing some command malfunction. If this happens pressing RESET should correct the problem. The possibility exists, however, that instead of correcting the problem, pressing RESET may erase the programmed memory.

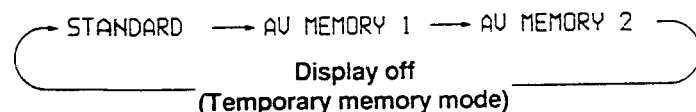
21 M. CLR Button

Erases all commands programmed through the LEARN function; press lightly with the tip of a ballpoint pen or other fine-tipped instrument during learn mode to activate this function. For details, see page 22.

22 STD/AV MEM (Standard/AV Memory)

Press to switch between the standard (STD) picture/sound quality settings and your AV MEMORY 1 and AV MEMORY 2 setting.

This key only recalls settings stored in AV MEMORY. To put the current picture/sound settings into AV MEMORY, use the control panel's PRESET MENU buttons. For details, see pages 34 and 35.

**23 Picture-in-Picture Control Keys**

Any program source connected to the Projection Monitor can be displayed on the screen simultaneously with any other source. Also, the multiscreen mode (4 sub screen or 9 sub screen) can be selected.

P IN P: Press to turn the Picture-in-Picture function on and off.

INPUT: Press to select the input source for the sub-picture when one sub-picture mode will be selected.

MULTI: Press to select the number of sub-pictures which appear on the screen (1, 4 or 9).

SWAP: When only one sub-picture is displayed, press to exchange the position of the main picture and sub-picture.

SHIFT: Press to move the sub-picture to a different place on the screen.

STROBE: Press to select the strobe feature. Be sure to select the multiscreen mode (4 sub screen or 9 sub screen) using the MULTI key.

STILL: Press to select still screen or normal mode.

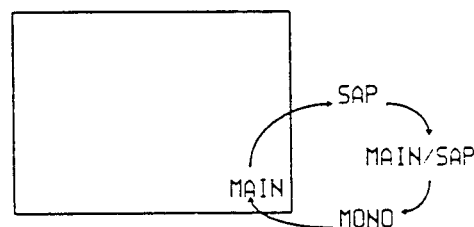
24 Direct Channel Selection/Color Convergence Pad

Press the key (or keys) that correspond to the channel that you wish to watch, to switch directly to that channel from any other channel.

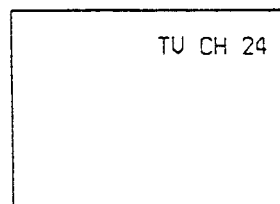
The , , , and keys are also used for color convergence operation. For details, see page 24.

25 MTS (Multi-channel TV Sound)

Press to select the reception mode for multi-channel TV sound (MTS). The switching sequence is as follows.

**26 TV CHANNEL - , +**

Press the left (-) or right (+) side of this key to scan up or down among the channels in tuner preset.



REMOTE CONTROL UNIT FACILITIES

Dynamic sound expansion effects

This monitor is equipped with the newly designed Dynamic Sound Expansion system to reproduce a wider and more dynamic sound field for any video source including TV programs. A monaural sound track can also be modified to produce stereo-like sound. Simulated stereo sound is included in the dynamic-sound expansion system.

Press the D-SOUND EXPANSION key repeatedly to select the mode of dynamic sound expansion as follows:

THEATER: Set to this mode while watching movies or sports programs.

MUSIC: Set to this mode while watching music programs.

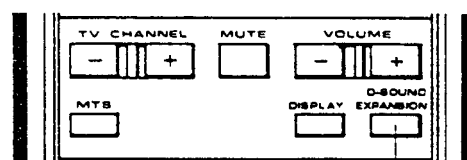
S. STEREO

(Simulated Stereo): Set to this mode while watching monaural sound programs.

When you wish change from monaural sound to a simulated stereo sound with the dynamic-sound expansion system:

Press the D-SOUND EXPANSION key repeatedly until S. STEREO is displayed on the screen.

* After the monaural program is finished, it is recommended you turn the dynamic-sound expansion system off or set the monitor to THEATER or MUSIC.



D-SOUND EXPANSION key

NOTES:

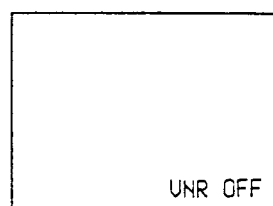
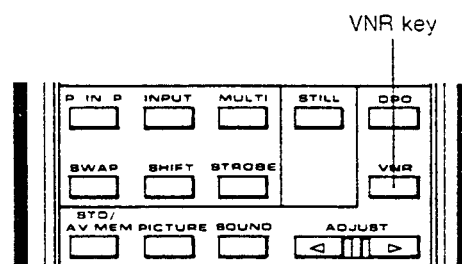
- The selected mode will appear on the screen for 4 seconds.
 - The dynamic-sound expansion system effect is performed by both the internal speakers and external speakers which are connected to the EXT SPEAKERS terminals.
 - Only the signals from the AUDIO OUTPUT (VARIABLE) jacks will be altered when the dynamic-sound expansion system is engaged.
- The original output signal is sent through the other OUTPUT REC jacks.

VNR (Video Noise Reduction) system operation

To improve picture quality with VNR while watching a TV program or prerecorded video cassette tape playback

VNR system will reduce the noise contained in the video signal and improve the picture quality of TV programs or video tape playback pictures.

Press the button once to display the VNR mode (VNR ON or VNR OFF) on the screen. then press the button once or twice to select either VNR ON or VNR OFF.



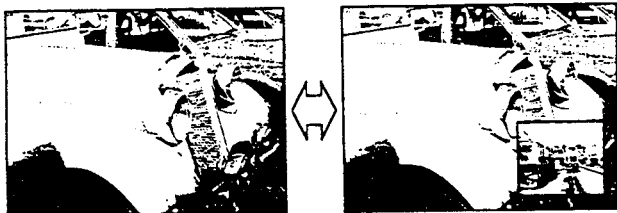
REMOTE CONTROL UNIT FACILITIES

Picture-in-Picture functions

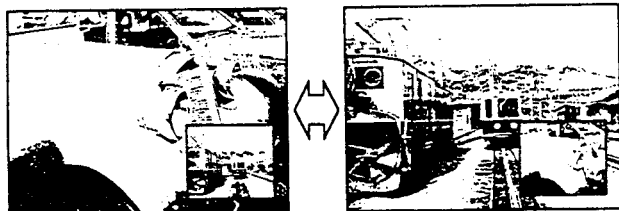
Any one of the three sources connected to the Projection Monitor can be displayed simultaneously on a small area of the screen, while one of the other sources is being watched on the main screen.

To turn the Picture-in-Picture function on and off

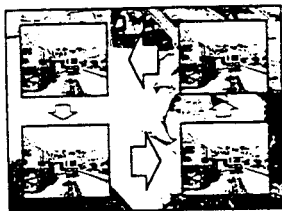
Press the P IN P key repeatedly to turn the sub-picture on and off.

**To replace the main screen picture with the sub-picture**

Press the SWAP key. Each time this key is pressed, the main screen and the sub-picture will switch positions.

**To change the position of the sub-picture**

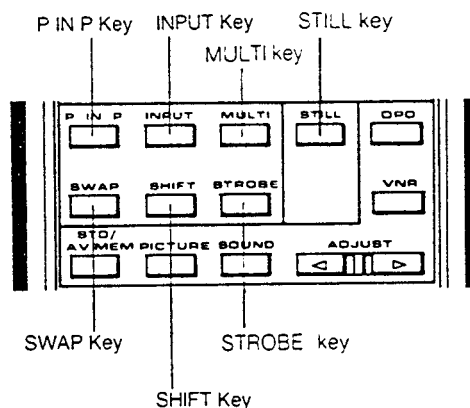
Press the SHIFT key repeatedly. Each time this key is pressed, the sub-picture will move (counterclockwise) to a different corner of the main screen.

**To select the input source of the sub-picture while watching the main screen**

Press the TV, LD, VIDEO 1, VIDEO 2 or VIDEO 3 INPUT SELECTOR key. When the INPUT key on the remote control unit is pressed, the selected video source for the sub-picture will be displayed (ie, video disc playback, TV program or video cassette tape playback).

**Sub-picture input display**

When using the picture-in-picture function, press the INPUT key to display the sub-picture input source above (or below) the sub-picture. Press the DISPLAY key to display the input source of the main picture in the upper right hand corner of the screen. Sub-picture mode will appear in the lower left corner of the screen.

**To watch a still picture on the main screen**

Press the STILL key to freeze the picture. The sound track will continue to play back normally, but the picture will freeze.

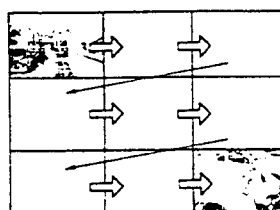
To cancel still or picture-in-picture function

Press the STILL key again. The screen will be reset to normal mode. Alternatively, press the P IN P key to cancel the picture-in-picture function.

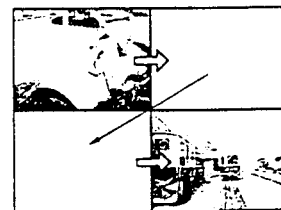
Picture-in-Picture function using the Multi-screen feature

The multi-screen feature can select 4 subscreen mode or 9 subscreen mode, and the strobe or manual features.

- 1 Press the P IN P key to turn the picture-in-picture function on.
- 2 Press the MULTI key repeatedly to select 1, 4 or 9 screen. When selecting 4 subscreen or 9 subscreen mode, the main screen will disappear and 4 or 9 subscreen will appear on the screen. The lower right hand corner of the screen plays back normally. If the 1 screen mode is selected, the main screen will reappear.
- 3 Press the STROBE or SHIFT key. When the STROBE key is pressed, the picture will be displayed at specific intervals. At each interval, a still picture appears in one of the 4 (or 9) screens. The final screen picture plays back normally. Press the SHIFT key repeatedly if you wish to change the active subscreen's position. The subscreen selected most recently will play back normally.
- 4 To cancel the multi-picture feature: Press the MULTI key. The main and sub-screen will reappear. Alternatively, press the P IN P key to cancel the picture-in-picture function.



9 screen mode



4 screen mode

REMOTE CONTROL UNIT FACILITIES

To display the picture of several television stations using the channel scan feature

The channel scan feature can display 4 or 9 television station pictures at the same time. The stations which have been memorized in the TV tuner will be displayed on the split screen.

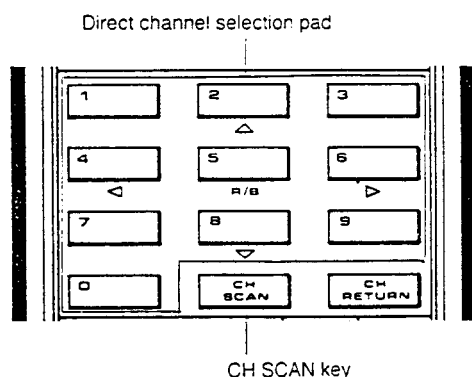
All the displayed pictures will appear as still images when the channel scan feature is engaged.

- 1 Press the TV INPUT SELECTOR key or press the INPUT SELECTOR button repeatedly until a TV program appears.
- 2 Press the CH SCAN key to display the first 4 stations on the screen. The memorized TV stations will appear in order from the top left corner to bottom right corner of the screen.
- 3 Press the MULTI key repeatedly to select 4- or 9-screen mode. The selected TV station will appear in the sub-screen in the upper left corner of the screen.
- 4 To display the next group of memorized TV stations:
Press the CH SCAN key again.
Press the CH SCAN key repeatedly to select the memorized stations you wish to watch.
- 5 To cancel the channel scan feature:
Press the P IN P key again.

If you wish to select a station when the channel scan feature is engaged.

Press the direct channel selection pad you wish to select.

* Press the DISPLAY key to reappear channel numbers on the screen.



Attention

Do not use the Picture-in-Picture function for more than 2 hours. It may damage the picture tubes inside the Projection Monitor. If you wish to use this function for more than 2 hours, change the sub-picture position on the screen every once in a while by pressing the SHIFT key.

NOTES:

- If only the **S-VIDEO** LD and VIDEO jacks are used to connect the LD player and VCR to the Projection Monitor, the Picture-in-Picture function will not operate when these buttons and keys are pressed.
- The sound of the sub-picture(s) cannot be heard when the Picture-in-Picture system is engaged.
- When a copy-protected tape is played back in the main screen, the sub-picture may be distorted.
- With some VCRs, the screen may fluctuate, when the VCR is not in playback mode. This is not a malfunction.
- TV channels can be selected with the TV CHANNEL +/- key or the direct channel selection pad when the TV key of the INPUT SELECTOR is pressed. Both the main screen and the subpicture will change TV channels at the same time when TV channels are selected.
- Signals output from the Projection Monitor will not be altered when the Picture-in-Picture function is engaged.
Only the main picture signal is sent through the monitor output jacks.
- The picture-in-picture function will be cancelled automatically if none of the picture-in-picture control keys or CH SCAN key are pressed for more than 8 minutes when still mode, multi-mode or channel scan mode is engaged.
- If the input signal (including burst signal) is not supplied to the main screen, the picture-in-picture function will not function properly.
- During still playback, special effect playback, or when searching an LD or video cassette tape visually forward or backward using the main screen, shaking may occur in the sub-picture.
- After the multi-screen feature is engaged, input to the sub-screen cannot be changed by pressing the INPUT key. If you wish to change the input, press the MULTI key to cancel the multi-screen mode or select one sub-picture mode, and select the desired input source of main. Then select the multi-screen feature again.
- Sub-picture mode only appears if the main screen signal is not supplied on the monitor when turn the picture-in-picture function on. Pictures will appear on both the main screen and sub-picture when the main screen signal is supplied.
- If any TV program is received or TV program is tuned in clearly, black and white picture will appear in the sub-picture when the CH SCAN key is pressed. If this happens, select a TV program tuned in clearly, then press the CH SCAN key.
- Channel scan feature can display only memorized TV stations which can be tuned using the TV tuner of the monitor.
If the RF terminal of the CATV converter is connected to the monitor, channel scan feature can display CATV converter selected station only, not all the stations memorized in the CATV converter.

Programmable remote control functions

This remote control unit can "learn" the commands of other remote control units, regardless of their manufacturer, as long as the other unit is of the infrared type. In some cases you may still need the original remote control unit, but you will be able to use this unit for most of your video as well as audio system control needs.

NOTE:

It is advisable to program the unit in a room separate from the system with which it is to be used. This will prevent problems such as sudden high-volume output or accidental tape erasure that may occur if command signals reach your components during programming. Or, you may wish to unplug your component system and conduct programming in the same room. Simply turning off the power may not be sufficient since power on/off switching may also be remote controllable. Also do not throw away the original remote control units after programming. You might need the original ones in the future.

This remote control unit contains preprogrammed commands compatible with PIONEER equipment. If your home audio/video center consists exclusively of PIONEER components, you can use the unit without any additional programming. It is also possible to return to the original PIONEER commands after assigning other commands. (Refer to "Returning to the Initial Settings" for details.)

Which keys can be programmed with new commands?

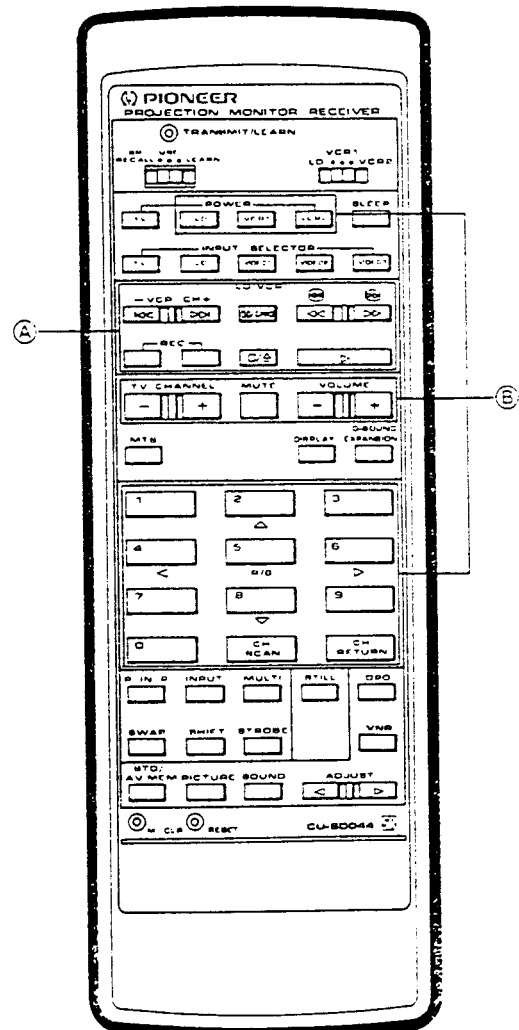
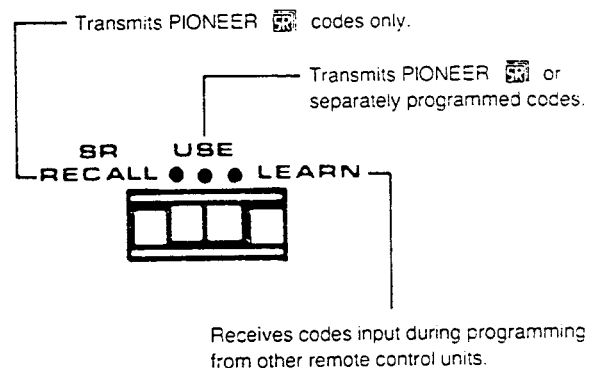
Setting the LEARN MODE switch to the LEARN position allows the unit to memorize codes. Once programmed, these new commands can be transmitted only when the LEARN MODE switch is in the USE position. The SR RECALL setting will only allow transmission of the initialized PIONEER codes.

For LD/VCR controls in area (A), the keys can be programmed with a different command from another remote for each TRANSMIT MODE. In other words, each key can have up to three different functions, differentiated by the setting of the TRANSMIT MODE.

For POWER and other TV controls in area (B), each key can be programmed with only a single command, regardless of the TRANSMIT MODE setting.

Other Important Notes

- A total of 44 other codes can be memorized using these keys. (This may vary depending on the command format of the codes to be memorized.)
- There are 2 keys on the unit for recording, to help prevent misoperation. To start recording, or to memorize a command code with the REC keys, both of them must be pressed at the same time.
- When the batteries run down, all functions will stop automatically. If the indicators no longer light or flash, or components do not respond to signals from the unit, the batteries need to be replaced. (Always use alkaline cells.)
- When programming keys, make sure that both units are loaded with fresh batteries.
- Programming may be impossible from some types of infrared remote control units.



How to program the remote control buttons

- 1 Set the LEARN MODE switch to LEARN.
- 2 Place the other remote control unit and the programmable remote control unit on a table facing each other, separated by a distance of 2 to 4 inches (5 to 10 cm).
Programming will not be possible if the units are too close to each other.
- 3 Press the key on the programmable remote control unit that you wish to program until the TRANSMIT/LEARN indicator lights up.
- 4 Press a key on the other remote control unit until the TRANSMIT/LEARN indicator goes off.
- 5 To program other keys, repeat steps 3 and 4.
- 6 When finished, set the LEARN MODE switch back to the USE position.
- 7 Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished programming.
If the component does not work as expected, repeat steps 1 to 7. Try changing the distance between the remote control units in step 2.

NOTE:

- When programming, make sure that function indicators (e.g., ►, ►►, ■) are programmed from the original remote control unit into the matching keys of the programmable unit; this will greatly facilitate operation.
- Do not press the keys excessively while performing programming operations.
- The TRANSMIT MODE switch will shut off automatically while performing programming operations.
- If the LEARN indicator flashes, it indicates either that you are trying to store a command with a key incapable of being used with the LEARN function or that the remote control unit's programming capacity has been exceeded. In the latter case, the function last programmed will not be stored correctly. All previously programmed functions, however, will be retained in the memory and may be used as they are if the last function is not essential. For re-programming information, refer to "Returning to the Initial Settings."

1. If programming is not carried out successfully:

- Position the remote control units at a greater distance from each other.

- Position the remote control units slightly out of line with each other.

2. If the remote control unit is directly subjected to strong fluorescent light, programming may not be possible.

3. If remote control operation is not successful although programming was successful:

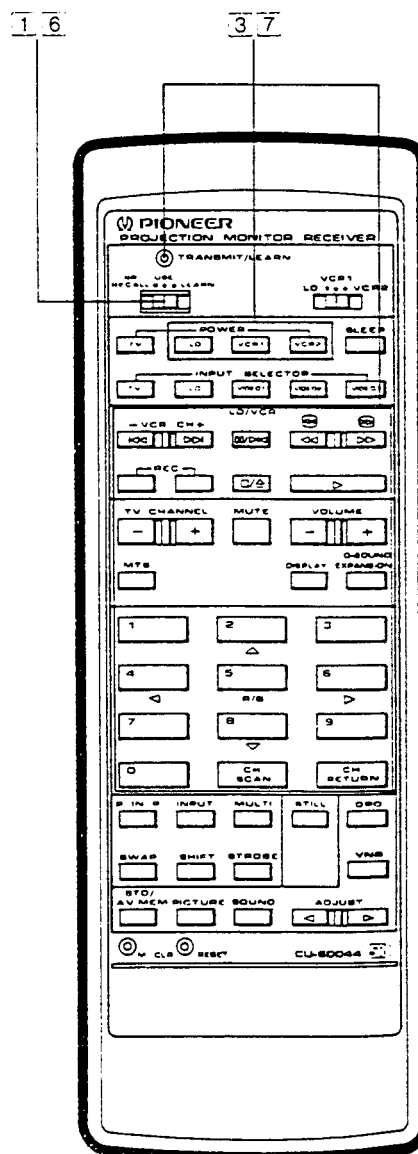
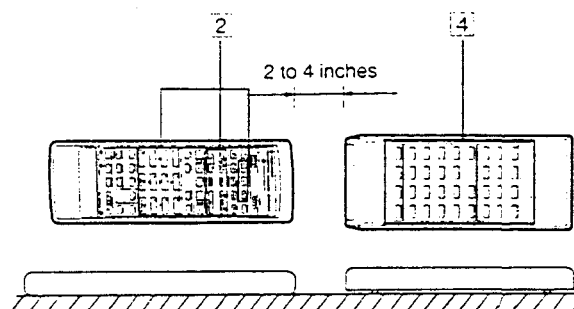
- Press the RESET button. (The programmed signals will not be erased.)

If the problem still cannot be corrected, press the M. CLR button and try programming again.

- After programming is completed, set the LEARN MODE switch to the USE position.

How to use the remote control buttons

- 1 Set the LEARN MODE switch back to the USE position.
- 2 Point the programmable remote control unit toward the corresponding component and check operation by pressing the keys you just finished presetting.



Overlay

An overlay sheet is provided, on which you can write the functions of keys you have programmed from other remote control units. It fits over the unit keyboard for your own personal reference.

Questions and Answers on Programming Commands

- Q:** The remote control unit for my VCR has two REC keys, which both have to be programmed at the same time to start recording. How should I program this into my programmable remote control unit?
- A:** Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the two keys on the VCR remote control simultaneously.
- Q:** The remote control unit of my VCR has a REC key and a PLAY key, and they both have to be pressed at the same time to start recording. How should I program this into my programmable remote control unit?
- A:** Press and hold both REC keys on the programmable remote control until the TRANSMIT/LEARN indicator lights up, and then press the REC and PLAY keys on the VCR remote control simultaneously.

NOTE:

If both keys are not pressed simultaneously in the above mentioned operations, the commands will not be memorized.

Battery Replacement

Replace the batteries as soon as possible if pressing the control keys does not cause the TRANSMIT/LEARN indicator to light even after the RESET button has been pressed.

Be sure to always use the specified batteries (LR6/AM3 alkaline batteries).

NOTE:

The unit's power switch is connected to the battery compartment cover. Therefore:

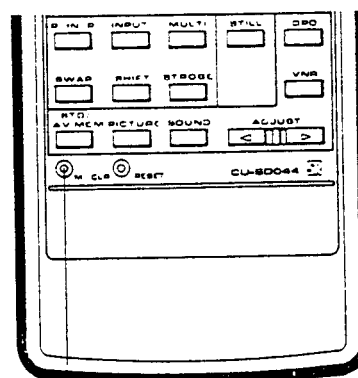
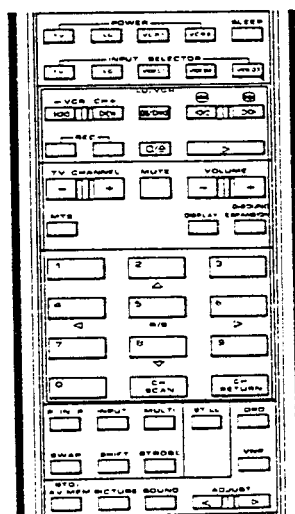
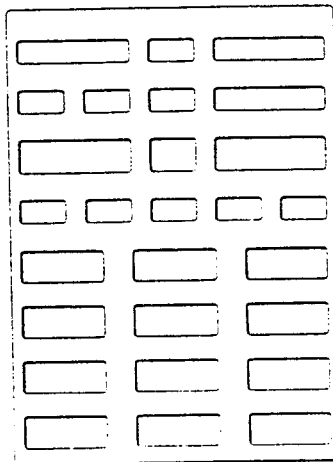
- The unit will not operate when the cover is off even if batteries are loaded.
- If the cover is replaced when batteries are not loaded the memory will be lost after a few seconds.
- With batteries loaded and the cover off, memory is retained for about 15 minutes.
- Be very careful not to lose the battery compartment cover.

Returning to the Initial Settings

Follow the instructions below to return all settings to the PIONEER Remote Control Code Settings.

- ① Set the LEARN MODE selector to the LEARN position.
- ② Press any programmable key. (The TRANSMIT/LEARN indicator will light.)
- ③ Using a ball-point pen or similar object, press and hold the M.CLR button down until the indicator flashes and then goes out.

All commands you programmed will be erased, and the unit will be reset to use codes initially set by PIONEER.



M.CLR button

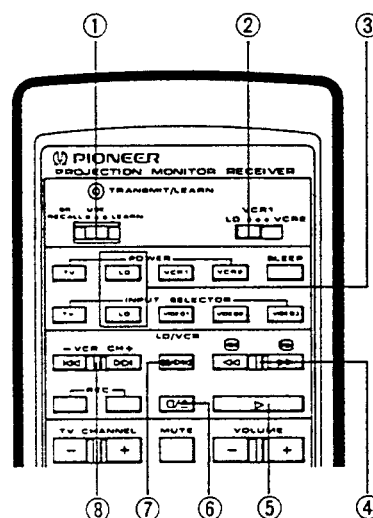
Control keys for a PIONEER LD Player and VCR bearing the mark

If your LD Player or VCR is a PIONEER model bearing the  marking, your remote control unit can perform most basic operations without remote control code programming.

The TRANSMIT MODE switch is used to select whether the programmable remote control unit operation keys will function as LD or VCR control keys.

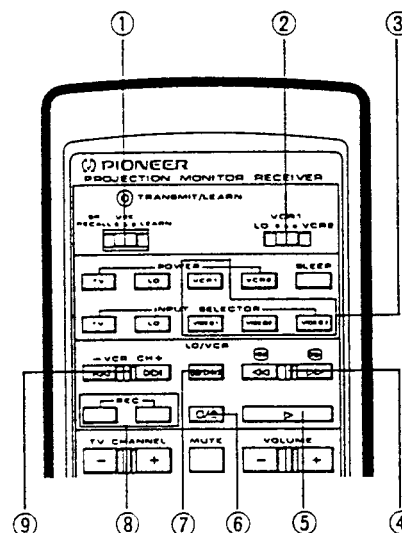
LD Player Control

- ① **Set the LEARN MODE switch to SR RECALL.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.
- ② **Set the TRANSMIT MODE switch to LD.**
- ③ **Press the LD POWER key to turn the power on.**
Then press the LD INPUT SELECTOR key to set the input selector of the monitor to LD.
- ④ **Scan (◀/▶) key**
Press the ▶ side of the key to search in the forward direction while playing back the videodisc.
Press the ◀ side of the key to search in the reverse direction while playing back the videodisc.
- ⑤ **Play (▶) key**
Press to begin playback.
- ⑥ **Stop/Eject (■/▲) key**
Press once to stop playback, twice to eject the disc.
- ⑦ **Pause/Still (||/▶◀) key**
Press to interrupt videodisc playback temporarily. Press the button again to resume playback.
- ⑧ **Chapter Skip Key (◀/▶) key**
Press the ▶ side of the key to skip directly to beginning of the next chapter, press the ◀ side to skip directly back to the beginning of the chapter currently in play. This operation can only be performed on an LD Player with chapter skip function.



VCR Control

- ① **Set the LEARN MODE switch to SR RECALL.**
After presetting the remote control codes of the programmable remote control unit, set the switch to SR RECALL.
- ② **Set the TRANSMIT MODE switch to VCR1.**
- ③ **Press the VCR1 POWER key**
To turn the power on. Then press the VIDEO INPUT SELECTOR key to set the input selector of the monitor to VIDEO.
- ④ **Rewind/Fast Forward (◀/▶) key**
This key allows high-speed movement through parts of the tape that you don't wish to watch. Press the left side of the key to rewind the tape, and the right side to advance. During playback, use this key to search visually forward or backward.
Keep pressing the left or right side of the key until the section you wish to watch appears, then release it to resume normal speed playback.
- ⑤ **Play (▶) key**
Press to begin playback.
- ⑥ **Stop/Eject (■/▲) key**
Press once to stop playback.
* Eject function will be performed only if your VCR is equipped with the remote control eject function.
- ⑦ **Pause/Still (||/▶◀) key**
Temporarily interrupts recording or playback, producing a still picture during playback.



- ⑧ **REC (Record) keys**
Press both keys at the same time to start recording.
- ⑨ **VCR CHANNEL +/- key**
Press to select the channel of the TV tuner on the VCR.

HOW TO ALIGN COLOR CONVERGENCE

This Projection Monitor uses three separate TV tubes — a red, a green, and a blue tube. The red, green and blue images are projected onto the screen where they converge to form a full color picture. If they do not converge correctly, then you will see colored borders around the images.

Your dealer should adjust the color convergence when your monitor is delivered. However, convergence may drift over time or if you move the monitor.

Follow the steps below if color convergence alignment is needed.

- 1 Turn on the power and select an active channel. Wait a moment for the picture to stabilize.
- 2 Press the MENU ON/OFF button on the control panel. The monitor screen displays the menu (CONVERGENCE, AV MEMORY, DPO BASE, INPUT LABEL, TV-CATV MODE, SYSTEM MODE, and TUNER PRESET). Make sure that "CONVERGENCE" is displayed in red. If not, press the MENU SELECT/ADJUST buttons until "CONVERGENCE" turns red.
- 3 Press the MENU SET button on the control panel. If color convergence is correct, there will be one vertical white line and one horizontal white line, as shown in figure 1.
- 4 If you see separate colored lines (Fig. 2 to 4), use the R/B, ◀, ▶, ▲, and ▼ keys on the remote control unit to make the red and blue lines disappear into the other lines. Pressed (red or blue) alternates. Pressing the ◀ key moves the vertical line to the left, while pressing the ▶ key moves the vertical line to the right. Pressing the ▲ key moves the horizontal line upward, while pressing the ▼ key moves the horizontal line downward. In figure 2, for example, press the R/B key to control the red line, and then press the ◀ key until the red line converges. Press the R/B key again to control the blue line, and then press the ▼ key until the blue line converges. Convergence is correct when all three colors (red, green, and blue) converge, producing single white lines.
- 5 Press the MENU ON/OFF button when convergence is correct.

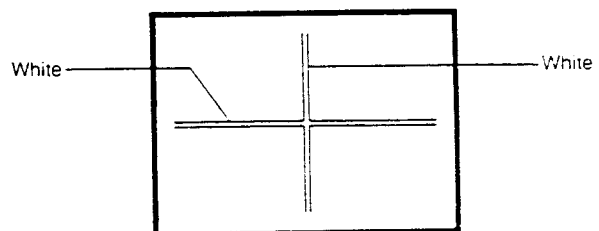
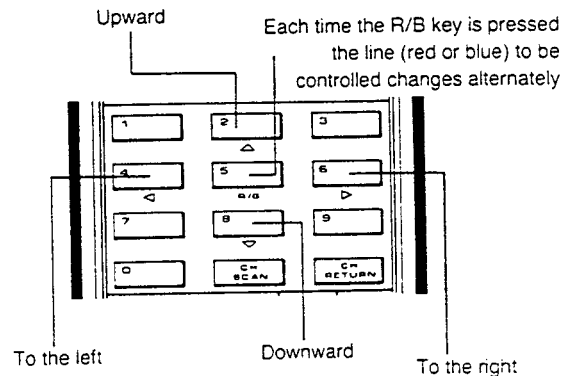
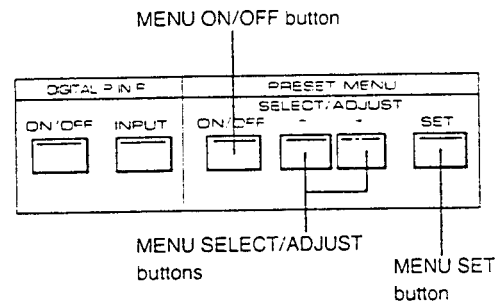


Fig. 1 Correctly aligned

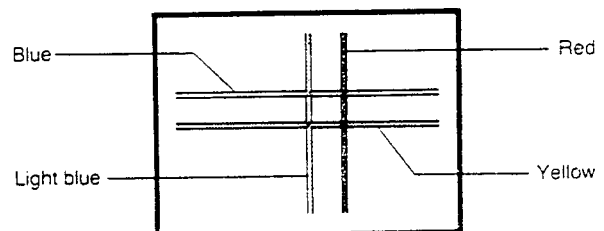


Fig. 2 Horizontal and vertical misalignment

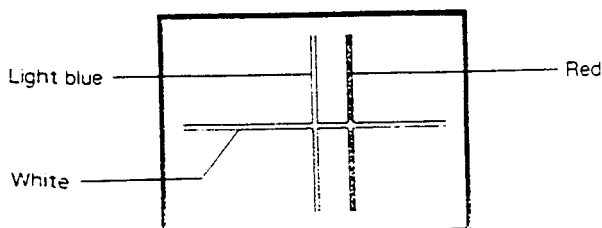


Fig. 4 Horizontal misalignment

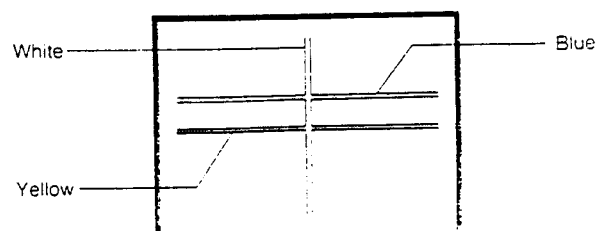


Fig. 3 Vertical misalignment

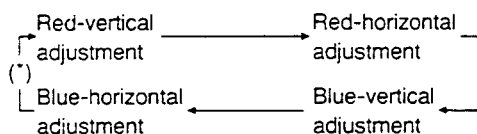
HOW TO ALIGN COLOR CONVERGENCE

Color convergence alignment without using the remote control unit

Color convergence adjustment can be performed by either the operation keys of the remote control unit as described in operation 4 of the above procedures, or the MENU SELECT/ADJUST buttons and MENU SET button on the control panel as described below:

- ① Press the **MENU SET** button to select the adjustment mode. The adjustment modes appear in the following order:

- Convergence adjustment test pattern and arrow will appear on the screen accordingly.



* Alignment proof mode: selected image only appears.

- ② Use the **SELECT/ADJUST** buttons as follows:

During Red or Blue Vertical adjustment

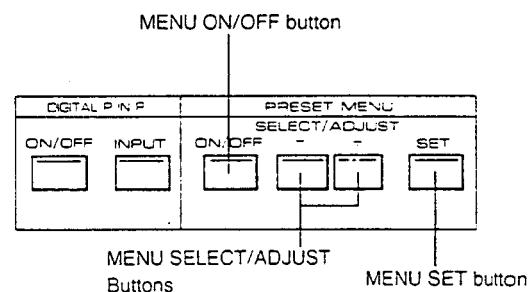
Press the **+** button to move the horizontal line upwards.

Press the **-** button to move the horizontal line downwards.

During Red or Blue Horizontal adjustment

Press the **+** button to move the vertical line to the right.

Press the **-** button to move the vertical line to the left.



HOW TO ALIGN COLOR CONVERGENCE

Notes for the convergence alignment adjustment

By repeatedly pressing the 5 R/B key or the MENU SET button when the convergence alignment adjustment is engaged, a selected image can be displayed on the screen instead of the alignment cross pattern.

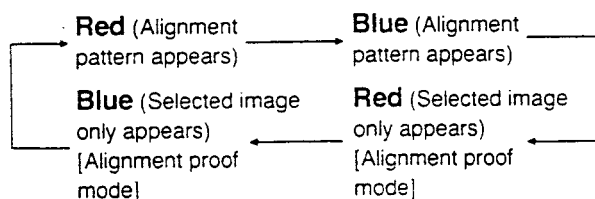
This is the alignment proof mode, which allows you to check the center of the images to ensure that colored borders are not seen after the adjustment.

In the alignment proof mode the alignment can also be adjusted by pressing the 2, 4, 6 and 8 keys or pressing the MENU SELECT/ADJUST button. However, it is difficult to adjust the alignment properly when only the images appear on the screen.

If you can still see colored borders around the images, press the 5 R/B key or the MENU SET button again until the proper convergence alignment pattern reappears, and adjust the alignment by following the operations described on the previous page.

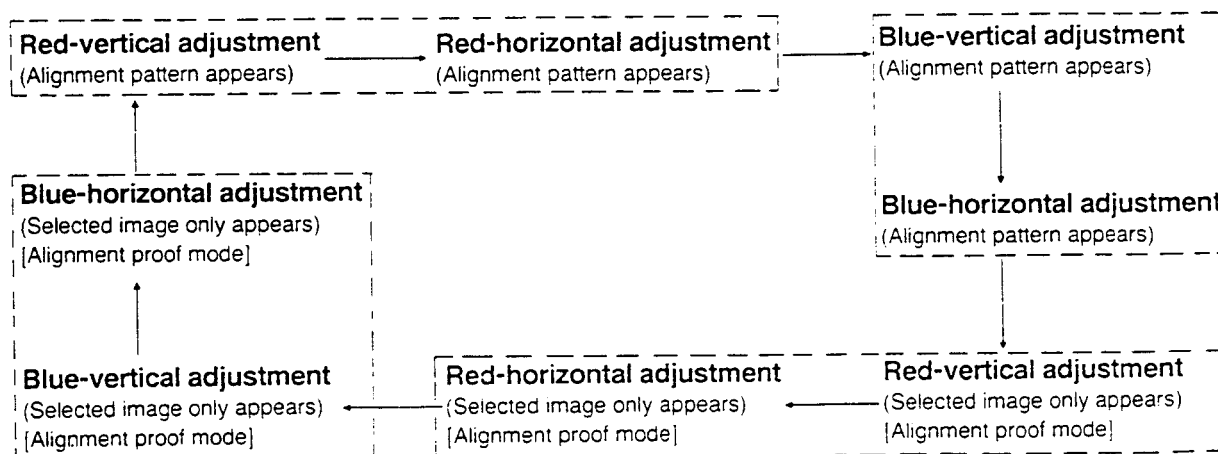
After all convergence alignment adjustment is finished, press the MENU ON/OFF button to set the monitor to its normal mode.

Each time the 5 R/B key is pressed, the alignment adjustment mode will change as follows:

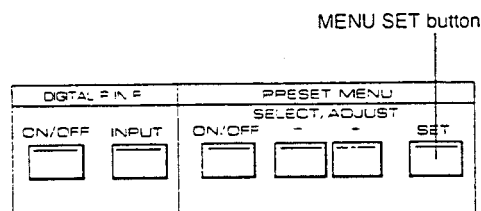
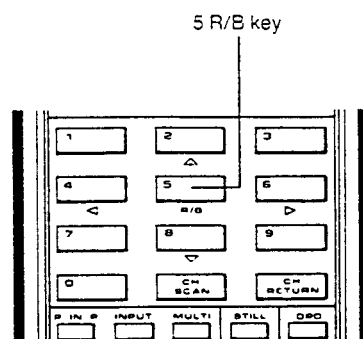


Convergence alignment adjustment can be performed by pressing the 2, 4, 6 and 8 keys on the remote control after the alignment mode is selected.

Each time the MENU SET button is pressed, the alignment adjustment will change as follows:



Convergence alignment adjustment can be performed by pressing the MENU SELECT/ADJUST button on the front panel after the alignment mode is selected.



TV CHANNEL SELECTION

The Projection Monitor uses a frequency synthesizer tuning system to permit reception of up to 127 channels (including cable channels). This electronic tuning system gives you two ways of selecting channels.

You can use the remote control keys numbered "0" through "9" to directly input the channel number. Or you can use the two CHANNEL keys marked "+" and "-" on the remote control unit or the CHANNEL buttons marked "+" and "-" on the control panels to select one channel after another. In the latter case, you can remove or add channels to "TUNER PRESET" so that it contains only those channels that you usually watch.

usually watch.

The 127 possible channels include broadcast TV channels 2—13 (VHF), 14—69 (UHF), as well as cable (CATV) channels 1—13 (VHF), 14—22 (mid-band), 23—36 (super-band), 37—65 (hyper-band), and 94-99 (mid-band).

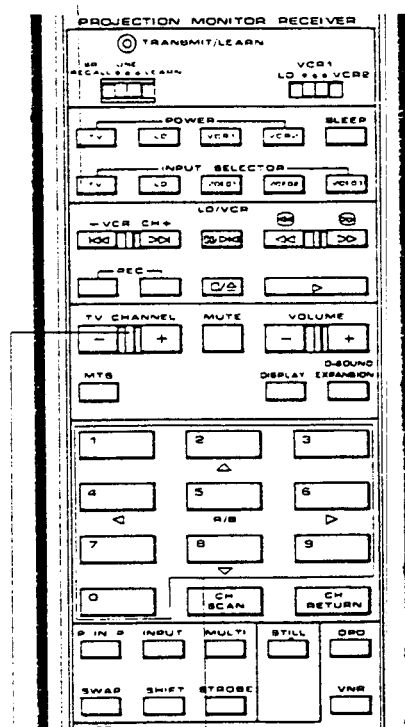
NOTE:

- **TUNER PRESET** refers to channel access by pressing the CHANNEL keys marked "+" and "-". You can specify which channels are to be included in TUNER PRESET before using this function. Details follow.

BROADCAST TV CHANNEL SELECTION (When the VHF/UHF antenna is connected to the ANTENNA terminal on the rear panel.)

- 1 Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.
- 2 Select channels directly by pressing the channel number on the remote control "CHANNEL CALL" 10-key pad. For example, to receive channel "23", press 2 and then 3. For channels 2 through 9, first press 0 (zero), then the number; or just press the number and wait for about four seconds. (While waiting for you to input a second digit, the first digit blinks. If you do not input a second digit within 4 seconds, then the first digit is selected as the channel number.)
- 3 Channel memory selection is also possible. Using the CHANNEL keys marked "+" and "-" on the remote control unit or CHANNEL buttons marked "+" and "-" on the control panel you can scan through the channels which are in tuner preset. To add or delete channels from memory, see TUNER PRESET on page 32.

TV Input selector key



Channel call 10-key pad

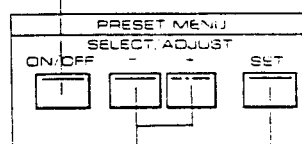
TV CHANNEL key

TV CHANNEL SELECTION

PRESETTING YOUR CATV SYSTEM (When the cable box output is connected to the ANTENNA terminal on the rear panel.)

- 1 Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.
- 2 Turn on the menu with the MENU ON/OFF button and press the MENU SELECT/ADJUST buttons so that the TV-CATV MODE display turns red.
- 3 Press the MENU SET button. Each press the MENU button, "AIR", "STD" or "HRC" appears on the screen.
- 4 Select "STD (standard)" or "HRC" with the MENU SET button. (Ask your dealer or cable service provider which is correct for your local CATV system.) Each press of the MENU SET button moves the selection from AIR to STD, to HRC, and then back to AIR again. The displayed mode ("STD" or "HRC") is now preset in the ANTENNA memory, so you can receive your local CATV broadcast when the TV is turned on.
- 5 Press the MENU ON/OFF button to return to normal operation.

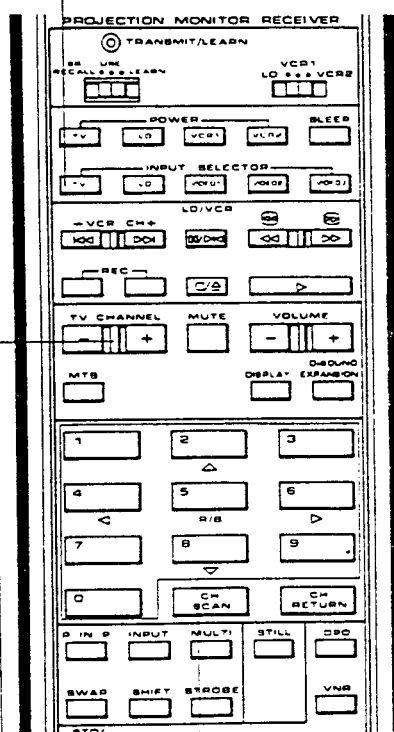
MENU ON/OFF button



MENU SELECT/ADJUST buttons

MENU SET button

TV Input selector key



10-key pad

TV CHANNEL key

CABLE (CATV) CHANNEL SELECTION

It is necessary to preset your local CATV system in ANTENNA memory. To preset your CATV system, see "PRESETTING YOUR CATV SYSTEM".

- 1 Press the INPUT SELECTOR button so that "TV CHXX" appears on the monitor screen, or press the TV input selector key on the remote control unit.
- 2 Select channels directly by pressing the channel number on the remote control 10-key pad. For example, to receive channel "23", press the 2 and then 3. For channels 1 through 9, first press 0 (zero), then the number; or just press the number and wait for about four seconds. Note that channel numbers "00", and "66" through "93" are not assigned, so the selected channel will not change if you input these numbers. You can select VHF channels (1—13), mid-band channels (A1—A6, A—I), super-band channels (J—W), and hyper-band channels (AA—CCC). Refer to the standard cable channel assignment table shown on page 22. Your local cable service provider's channel assignments may differ from those shown in the table.
- 3 Channel memory selection is also possible. Using the CHANNEL keys marked "+" and "—" on the remote control unit or the CHANNEL buttons marked "+" and "—" on the control panel you can scan through the channels in channel memory. To add or delete channels from memory, see TUNER PRESET on page 32.

TV CHANNEL SELECTION

CABLE (CATV) CHANNEL ASSIGNMENT TABLE

Channel number assignment for the cable tuning mode begins with 01 through 65, omits the unassigned numbers 66 through 93, then proceeds from 94 through 99. The specific channel number assignments and the corresponding alphabetical designation are shown below in the channel table.

	VHF L	MID	VHF H	SUPER	HYPER	UHF
TV	2-6	—	7-13	—	—	14-69
CATV	2-6 (STD)	A-6 (94) A (14)	7-13	J (23) Q (30) AA (37)	KK (47) TT (56)	—
		A-5 (95) B (15)		K (24) R (31) BB (38)	LL (48) UU (57)	
		A-4 (96) C (16)		L (25) S (32) CC (39)	MM (49) VV (58)	
		A-3 (97) D (17)		M (26) T (33) DD (40)	NN (50) WW (59)	
		A-2 (98) E (18)		N (27) U (34) EE (41)	OO (51) XX (60)	
	1-6 (HRC)	A-1 (99) F (19)		O (28) V (35) FF (42)	PP (52) YY (61)	
		G (20)		P (29) W (36) GG (43)	QQ (53) ZZ (62)	
		H (21)		HH (44)	RR (54) AAA (63)	
		I (22)		II (45)	SS (55) BBB (64)	
				JJ (46)	CCC (65)	

For example: Channel number "14" corresponds to mid-band cable channel "A".

NOTE:

- Cable (CATV) services can vary from area to area. The channel number assignments shown in the channel table may not correspond with the channel numbers used by your local cable company. Direct tuning to cable channels without the use of the cable company "converter" or "preselector" will depend on the specific channels in use by the cable company. Direct tuning to cable channels is limited to unencoded (unscrambled) channels only. Check your local cable company compatibility requirements.

MULTI-CHANNEL TV SOUND (MTS)

A multi-channel TV sound decoder is built into the Projection Monitor.

This MTS decoder permits stereo and SAP sound reception. (SAP is a "second audio program" often used for a second language.) The MTS decoder is only effective if the broadcast includes stereo or SAP signals.

STEREO RECEPTION

If necessary, use the remote control MTS key to switch to the MAIN setting. The set will switch automatically between mono and stereo according to the signals received.

MONO RECEPTION

You can force monophonic reproduction of all programs by using the MTS key to select MONO.

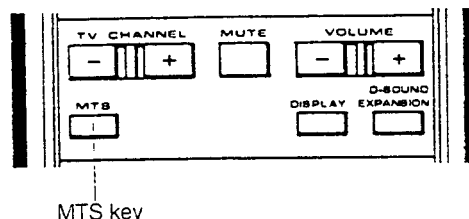
If you hear a lot of static while receiving a stereophonic TV program, set the MTS mode to MONO by pressing the MTS key.

SAP (SECOND AUDIO PROGRAM) RECEPTION

TV stations have the option of broadcasting a second audio program (SAP) signal. This additional sound channel accompanies another mono signal or stereo signal. However, the SAP sound itself is in mono.

Use the MTS key to switch to the SAP or MAIN/SAP setting if you wish to hear the "second audio program" sound. (At the MAIN/SAP setting, the SAP sound will come from the right speaker while the left speaker produces the main sound signal.)

You will still hear stereo or mono sound when there is no SAP signal.



NOTE:

The MTS display is shown on the screen when the channel is tuned in, or the DISPLAY key on the remote control unit is pressed.

• Broadcast stereo and SAP reception operate in accordance with the Broadcast Television Systems Committee (BTSC) standard only. Stereo audio transmission from CATV (Cable television) systems can vary from area to area and may not be compatible with the BTSC standard. Check with your local cable company for specific compatibility requirements.

Audio Reception Mode Display (selected by the MTS key)

Broadcast mode Mode selected		MONO	STEREO	MONO + SAP	STEREO + SAP
MAIN	Display	TU CH 00	TU CH 00 STEREO	TU CH 00 MAIN	TU CH 00 STEREO (SAP)
	REPRODUCTION Mode	MONO	L and R	MONO (MAIN)	L and R
SAP	Display	TU CH 00	TU CH 00 STEREO	TU CH 00 SAP	TU CH 00 SAP (STEREO)
	REPRODUCTION Mode	MONO	L and R	SAP	SAP
MAIN/SAP	Display	TU CH 00	TU CH 00 STEREO	TU CH 00 MAIN/SAP	TU CH 00 MAIN/SAP (ST)
	REPRODUCTION Mode	MONO	L and R	L: MONO (MAIN) R: SAP	L: MONO (MAIN) R: SAP
MONO	Display	TU CH 00 MONO	TU CH 00 MONO	TU CH 00 MONO	TU CH 00 MONO
	REPRODUCTION Mode	MONO	MONO	MONO (MAIN)	MONO (MAIN)

HOW TO RELABEL INPUT DISPLAYS

The input label function can be used to replace the input displays, such as LD, VIDEO 1, VIDEO 2 or VIDEO 3, with the model numbers or model names of the components that are connected to the monitor. For example, you can display 'LD-S2' on the screen when selecting the LD input source. The input label can be up to 8 characters long (the 43 characters, including _ (space), listed below).

- 1 Turn on the monitor and select the input (LD or VIDEO) that you wish to replace with the model number of the unit connected to the monitor.
Example: Replacing the LD display with model number 'LD-S2'.
- 2 Press the MENU ON/OFF button, and then press the MENU SELECT/ADJUST buttons until the INPUT LABEL display turns red.
- 3 Press the MENU SET button. 'LD' will appear in the right-hand corner of the screen.
- 4 Press the MENU SELECT/ADJUST buttons to select the desired character.
* Press the + or - button repeatedly until the desired character appears.
- 5 Press the MENU SET button to set the selected character.
- 6 If you wish to select additional characters, repeat steps 4 and 5.
- 7 Press the MENU ON/OFF button once when you finish replacing the input labels.

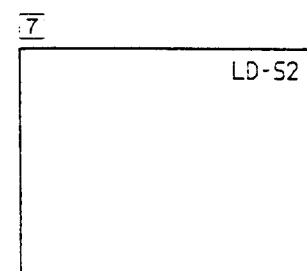
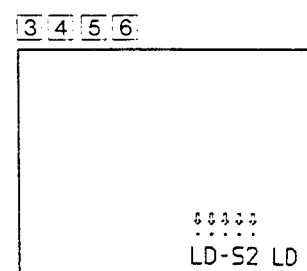
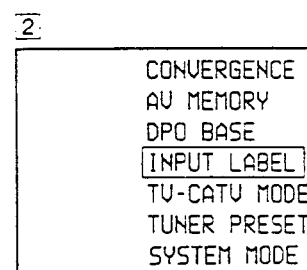
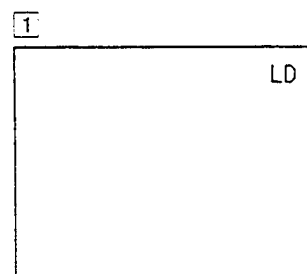
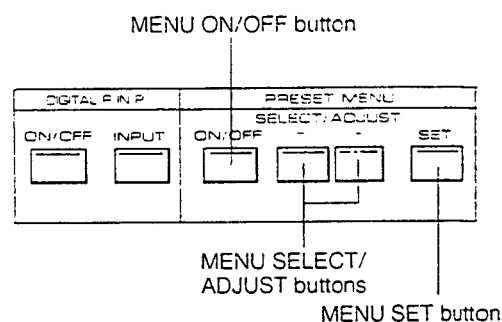
Now you can display the model number by pressing the remote control INPUT SELECTOR key or the control panel INPUT SELECTOR button.

NOTE:

- The following 43 characters, including _ (Space), can be selected.

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:;<>-_.
Space

- Make sure to press the MENU SET button after selecting the character.



TUNER PRESET

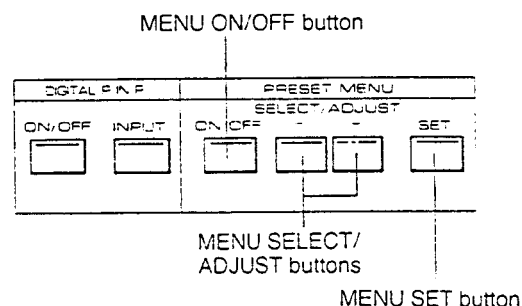
You can customize this special tuning system so that it will select only your personal choice of channels. When the Projection Monitor leaves the factory, all possible channels are in TUNER PRESET.

Using the menu function you can add or delete channels to or from TUNER PRESET to suit your tastes.

TUNER PRESET can be set to match your personal preferences among the channels available in your area. Please refer to your local TV or cable program guide. Follow the procedures below to customize TUNER PRESET to your requirements.

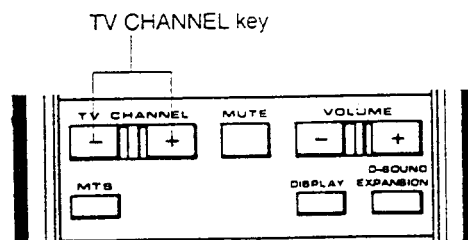
Removing channels from TUNER PRESET

- 1 Turn on the monitor and set the input selector to TV mode.
- 2 Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
- 3 Press the MENU SET button. The channel numbers appear on the screen.
- 4 Press the MENU SELECT/ADJUST buttons until the channel number to be deleted blinks (the preset channel numbers are displayed in green).
- 5 Press the MENU SET button to delete the currently selected channel from TUNER PRESET. The blinking number turns red. The red numbers show the deleted channel numbers.
- 6 Repeat steps 4 and 5 to delete additional undesired channels.
- 7 Press the MENU ON/OFF button after presetting is completed.



Adding channels to TUNER PRESET

- 1 Turn on the monitor and set the input selector to TV mode.
- 2 Turn on the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the TUNER PRESET display turns red.
- 3 Press the MENU SET button. The channel numbers appear on the screen.
- 4 Press the MENU SELECT/ADJUST buttons until the channel number to be added blinks. (The deleted channel numbers are displayed in red.)
- 5 Press the MENU SET button to add the currently selected channel to TUNER PRESET. The blinking number turns green. The green numbers show the added channel numbers.
- 6 Repeat steps 4 and 5 to add additional desired channels.
- 7 Press the MENU ON/OFF button after presetting is completed.



Other memory features

The Projection Monitor also remembers many other settings related to day-to-day operation. So when you turn the monitor on, it comes up with your previous channel and volume settings. It also remembers your previous picture quality settings.

Now you can recall the preset channels by pressing the remote control CHANNEL "+" and "-" keys or the control panel CHANNEL "+" and "-" buttons.

USING THE STATION LABEL FUNCTION

The station label function can be used to label each station with a call sign, network name, etc. For example, 'ABCD' can be displayed on the screen when that TV station is selected. The station label can be up to 4 characters long using the 43 characters, including _ (space) listed below.

- 1 Turn on the monitor and set the input selector to TV mode.
- 2 Press the MENU ON/OFF button, to display the menu. Then press the MENU SELECT/ADJUST buttons until the INPUT LABEL display turns red.
- 3 Press the MENU set button. The TV channel display appears.
- 4 Press the MENU SELECT/ADJUST button repeatedly until the desired TV channel is displayed.
- 5 When the desired channel is displayed, press the MENU SET button. The first character in the display turns red.
- 6 Press the MENU SELECT/ADJUST buttons repeatedly to select the desired character (the first character of your station label).
Press the + or - button repeatedly until the desired character appears.
- 7 When the selected character is displayed, press the MENU SET button. The second character in the display turns red.
- 8 Repeat steps 4 and 5 to input each of the remaining three characters.
- 9 To input station labels for other channels, repeat steps 3—6.
- 10 Press the MENU ON/OFF button when you finish inputting all of the desired station labels.

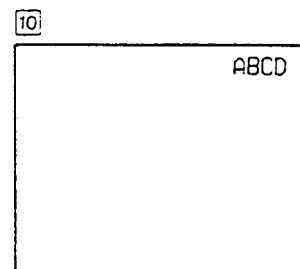
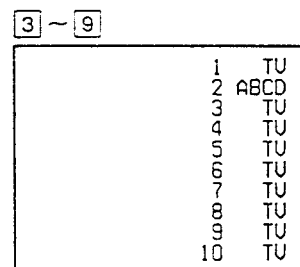
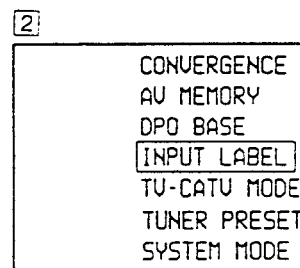
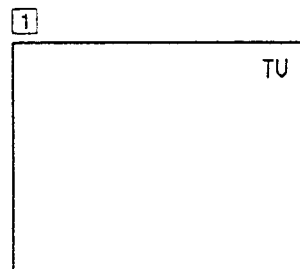
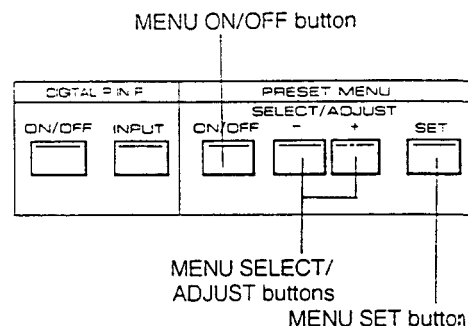
NOTE:

- The following 43 characters, including _ (Space), can be selected.

ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789:;<>-...

 Space

- Make sure to press the MENU SET button after selecting the character.



PICTURE AND SOUND ADJUSTMENT

The remote control unit has a PICTURE key and a SOUND key. These keys allow you to adjust color, tint, contrast, brightness, sharpness, bass, treble, and balance.

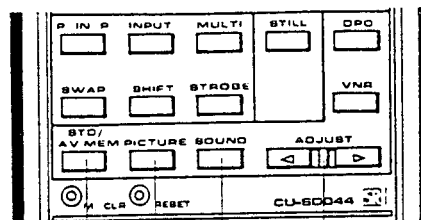
- 1 Press the PICTURE key or SOUND key until the item to be adjusted turns red.
- 2 Press the ADJUST ► key to raise the value of the selected item. Press the ◀ key to lower it.

Set each item to any value you like; the current value is shown on the screen.

Picture and sound adjustment mode will be cancelled approx. 4 seconds after the ADJUST ► or ◀ key is released.

NOTE:

- The Projection Monitor has been adjusted before shipping. Please make additional adjustments to suit your personal taste.
- These picture and sound quality settings can be stored in the AV MEMORY preset memory. See AV MEMORY on page 35.
- To return to the standard settings initially set at the factory, simply press the STD/AV MEM key so that the screen shows 'STANDARD'.
- The COLOR, Contrast (CONTR) and Brightness (BRITE) adjustments cannot be selected while the DPO switch is on. If you wish to adjust them, turn the DPO off.

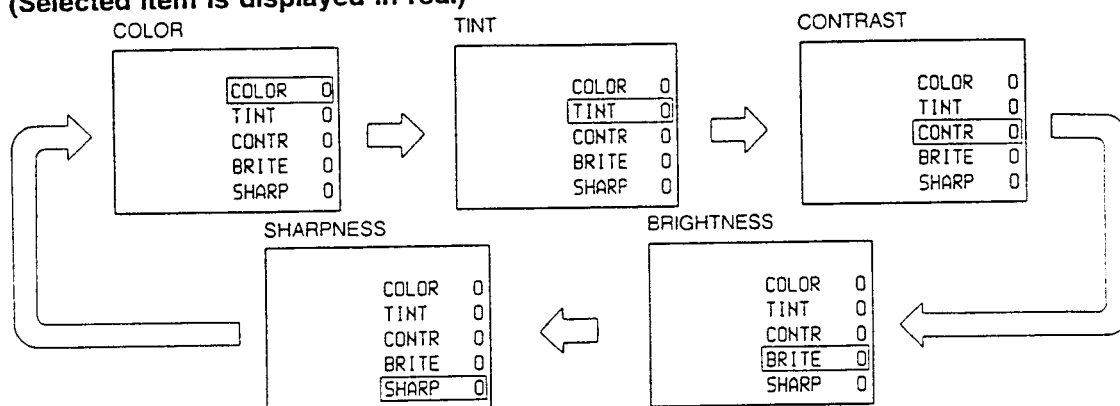


STD/AV MEM key
PICTURE key SOUND key

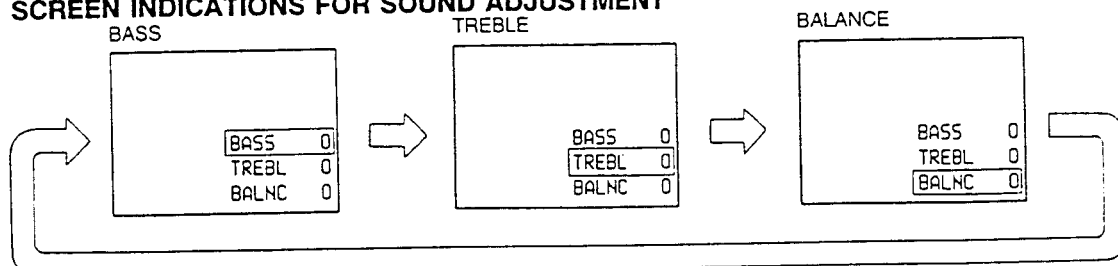
Temporary AV Memory recall

When the display disappears from the screen, the existing AV settings will be stored in the temporary memory mode. In this mode, the monitor's temporary AV memory settings will be restored when the power is turned on.

SCREEN INDICATIONS FOR PICTURE AND SOUND ADJUSTMENT (Selected item is displayed in red.)



SCREEN INDICATIONS FOR SOUND ADJUSTMENT



NOTE:

- If the color seems abnormal but cannot be fixed by color or tint adjustment, you may need to align the color convergence (see page 24).
- Bass and treble tone control adjustment range will be shown as a value between -32 and +31, and balance adjustment range will be shown as a value between L32 and R31.

- During the DPO adjustment and AV memory operation, 'DPO', 'STD', 'AV1' or 'AV2' will be shown on the left side of the screen. When the tone control or picture quality control are adjusted, these displays will disappear from the screen except for the 'DPO' display.

AV MEMORY

After making adjustments, you can store your picture and tone quality settings in the two AV MEMORY presets. Follow the procedure below.

Storing a Setting

- 1 Watch a TV show, video tape, or video disc.
- 2 Adjust the picture and tone using the PICTURE key, SOUND key and ADJUST key.
- 3 Press the MENU ON/OFF button to display the MENU, and press the MENU SELECT/ADJUST buttons until the AV MEMORY display turns red.
- 4 Press the MENU SET button.
- 5 Press the MENU SELECT/ADJUST button to select the AV memory (AV MEMORY 1 or AV MEMORY 2) in which the setting is to be stored. The unlocked display () will appear on the screen next to the selected AV MEMORY.
- 6 Press the MENU SET button to store the settings in AV memory. Upon completion of memory storage, the locked display () appears on the screen.
- 7 Press the MENU ON/OFF button to return to normal operation.

Recalling a Setting

Press the STD/AV MEM key on the remote control unit. Each press of the STD/AV MEM key moves the selection from STANDARD to AV MEMORY 1, to AV MEMORY 2, display off and then back to STANDARD again. (Press the key while the previous legend is still on the screen, otherwise, it will return to the STANDARD setting.)

Returning to the Standard Setting

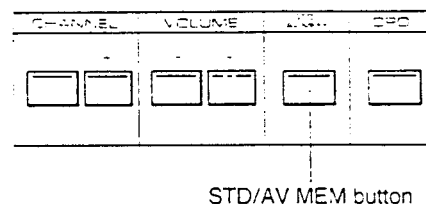
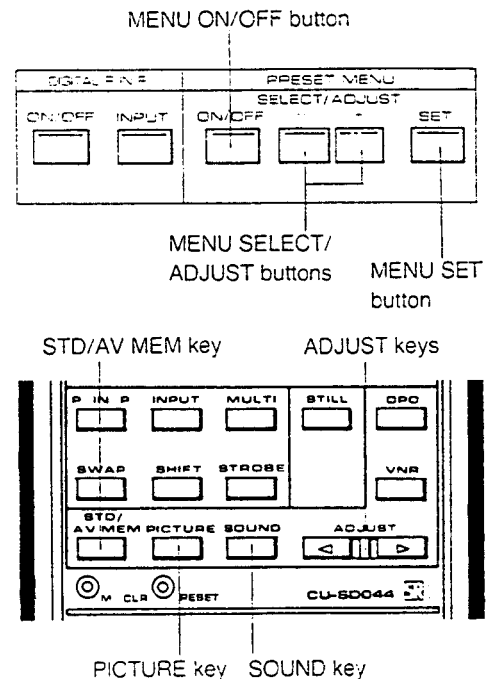
Press the STD/AV MEM key so that the screen shows STANDARD.

Recalling a setting with the STD/AV MEM key on the control panel

Press the STD/AV MEM button repeatedly to recall a setting, as described above for the remote control operation keys.

NOTE:

- Adjustments made to the AV memory, bass and treble tone, etc. will only affect the output from the AUDIO OUTPUT (VARIABLE) jacks.
- All other signals output from the Projection monitor will be unaffected.
- Only the original output signal is sent through the monitor output jacks.



AV Memory assignment

AV memory can be assigned to a selected input source: TV, LD or VIDEO. For example, the AV memory settings for TV can be stored in the STANDARD mode, LD settings in AV MEMORY 1 and VIDEO settings in AV MEMORY 2. Press the input selector key repeatedly to select the desired input source, then press the STD/AV MEM key repeatedly to recall the desired settings.

DPO ADJUSTMENT

When the DPO (Dynamic Picture Optimizer) switch is on, the monitor automatically adjusts the contrast, brightness and color to match room lighting conditions. This is done according to factory preset specifications which ordinarily do not need to be changed. However, if the DPO is giving you too bright or too dim a picture, you can change its response by following these directions.

DPO adjustment is necessary under the following conditions.

Room conditions	Monitor screen condition	Adjustment
Dim light	Too much brighter than room lighting	DPO DARK Adjustment
Bright light	Dark monitor screen (Picture cannot be seen clearly)	DPO LIGHT Adjustment

- Under dim or bright room lighting conditions, watch a TV show, video tape, or video disc.
- Press the MENU ON/OFF button to display the MENU, and press the MENU SELECT/ADJUST buttons until the DPO BASE display turns red.
- Press the MENU SET button. "DPO LIGHT" and "DPO DARK" appear on the screen.
- Press the MENU SELECT/ADJUST buttons to select the adjustment as follows:
Bright room — select DPO LIGHT
Dim room — select DPO DARK
- Press the MENU SET button. "COLOR", "CONTR" (Contrast) and "BRITE (Bright)" appear on the screen.
- Press the MENU SET button to select the adjustment items; "COLOR", "CONTR" or "BRITE".
Press the MENU SELECT/ADJUST buttons to adjust the selected item.
- Repeat step 6 to adjust the other two adjustment items.
- Press the MENU ON/OFF button after all adjustments are completed.

DPO system and AV MEMORY system

When the DPO system is turned off, the monitor picture will be set according to its original picture data (reference AV MEMORY data, memorized AV MEMORY 1 data or AV MEMORY 2 data).

When the DPO system is turned on, the monitor picture will be set according to a combination of the original AV MEMORY data (reference AV MEMORY data, AV MEMORY 1 or AV MEMORY 2 data) and the DPO adjustment data.

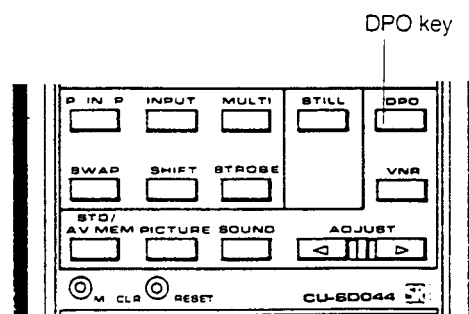
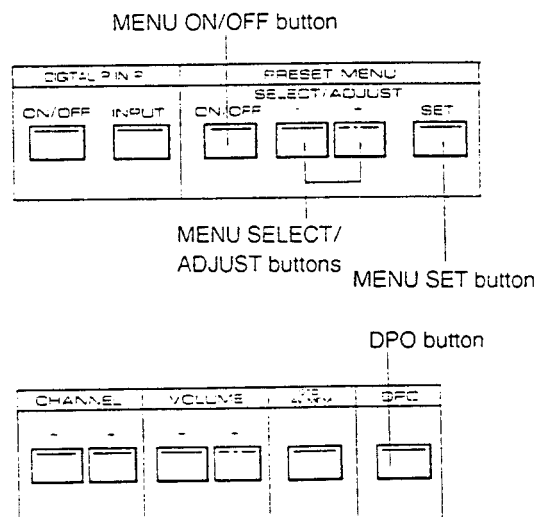
Attention

The following picture adjustments should not be performed when the DPO system is engaged.

They are automatically adjusted to the proper level by the DPO microcomputer according to lighting conditions when the system is turned on.

If you wish to adjust these items, turn the DPO system off before making adjustments.

- COLOR
- CONTRAST (CONTR)
- BRIGHTNESS (BRITE)



HOW TO TURN THE SYSTEM MODE FUNCTION ON AND OFF

On the system mode function

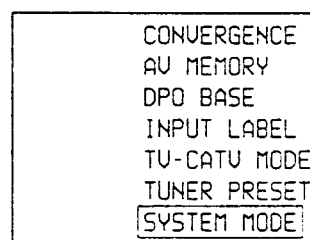
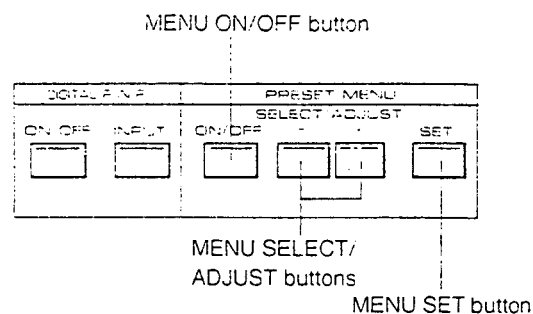
The system mode function is used to internally separate the TV tuner section from the Monitor section of the Projection Monitor. This allows the TV signal to be sent through an AV amplifier before being displayed on screen.

The system mode function can be used to connect all your audio and video components, including the Projection Monitor, to your AV amplifier, and control the operations of all of them with the AV amplifier's remote control unit.

Attention:

- The input selector is automatically set to LD or TV mode when the system mode is engaged.
- When the system mode is on, the input selector of the Projection Monitor will not change when the input select button is pressed.
- When using system mode, be sure to turn this function off. The input selector will resume normal operation when system mode is turned off. Follow the instructions below to turn the system mode function on and off.
- If the built-in speakers of the Projection Monitor are being used as the center channel speaker for the surround sound system, the Projection Monitor volume must be set to its maximum position (63).
- When resetting the Projection Monitor after system mode is turned off, set the volume control to its minimum position first.

- 1 Turn on the Projection Monitor.
- 2 Press the MENU ON/OFF button, and press the MENU SELECT/ADJUST buttons until the SYSTEM MODE display turns red.
- 3 Press the MENU SET button to turn the SYSTEM MODE on.
To turn the system mode off, press the MENU SET button again. SYSTEM OFF appears on the screen for 4 seconds.
- 4 Press the MENU ON/OFF button to return to normal operation.



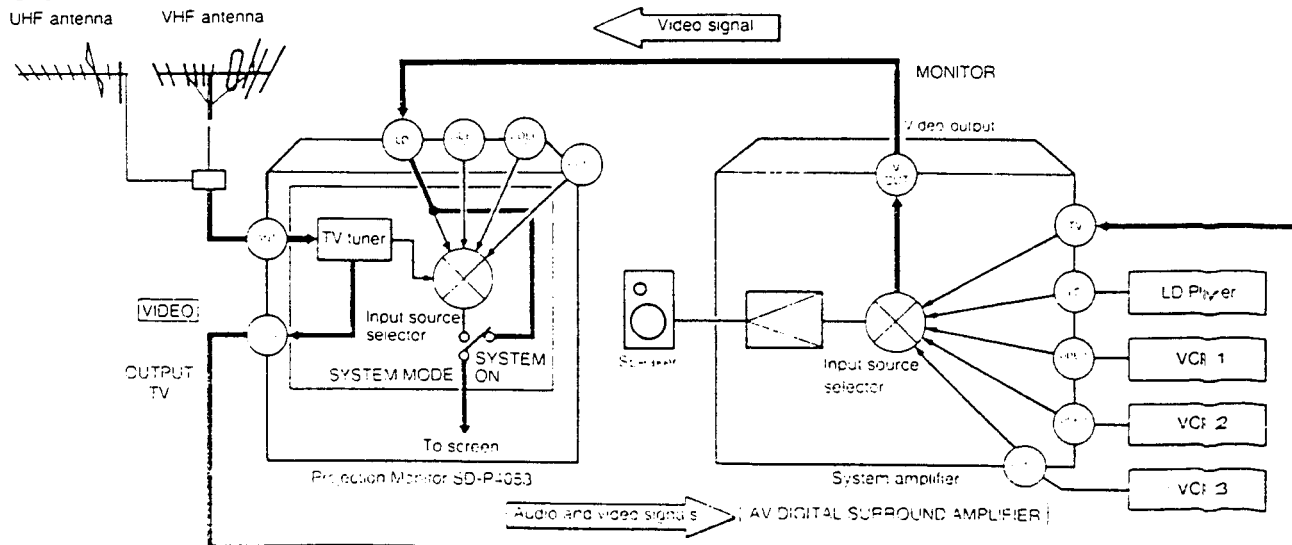
Notes on system mode

When system mode is engaged, the only pictures that can be displayed as a sub-picture are television broadcast pictures. When system mode is selected, the menu display appears on the screen. To make the menu display disappear, press the MENU ON/OFF button.

NOTE:

- Check the power of the Projection Monitor before and after using it. Be sure you turn the power of the Projection Monitor on and off with the remote control unit of the Projection Monitor.
- Perform all volume adjustment with the connected AV amplifier's VOLUME control.

SIGNAL FLOW DIAGRAM



Use commercially available VIDEO AUDIO cords for connections

TROUBLESHOOTING

Please check the following chart and try the suggested solutions before consulting a PIONEER authorized service center. Often you can fix the problem by making a simple adjustment on the Projection Monitor. Faulty connections may be to blame, or it may be another piece of equipment that is causing the trouble.

SYMPTOM	POSSIBLE CAUSE AND SUGGESTED SOLUTION
NO PICTURE	AC power cord is not plugged into the wall socket. Plug in the AC power cord. Power switch is off. Turn on the power switch on the Projection Monitor, or turn on the TV POWER key on the remote control unit. Selected video signal source is not connected to input jacks, or source component (VCR, etc.) is not turned on or is not providing a signal. Check connections and source unit operation.
COLOR IS WASHED OUT	Color value is too low. Use PICTURE/SOUND key and ADJUST keys to increase COLOR value. Brightness value is too high. Use PICTURE/SOUND key and ADJUST keys to reduce BRIGHT value.
COLOR TINT IS WRONG	Tint value is too high or low. Use PICTURE/SOUND key and ADJUST keys to adjust TINT value.
STATIC IN TV PICTURE	Interference from motor vehicles, neon signs, etc. Try changing the height or direction of the TV antenna. Move the antenna away from the source of interference.
GHOSTING ON SCREEN	This "multipath" distortion is caused when the TV signal is received along two paths directly after being reflected from tall buildings, mountains or other obstacles. Strong winds may have changed the direction of the TV antenna. Try changing the height or direction of the antenna. An antenna with better directional characteristics may be required.
COLORED STRIPES ON SCREEN	Interference from other radio or TV signals. Try changing the height or direction of the antenna. Try changing to a coaxial antenna cable. Coaxial cable is shielded to minimize pickup of interfering signals.
COLORED EDGES ON IMAGES	Color convergence needs adjustment. Tune in a channel, select CONVERGENCE from among the menu items and adjust using the convergence controls on the remote control unit (see page 24 for details).
UNCLEAR PICTURE	Connections are loose or cables are damaged. Check connections and try using new cables. Antenna may be damaged. Check antenna.
POOR PICTURE OR COLOR QUALITY	Interference from a nearby speaker or other source of magnetism. Move source of interference away from the monitor.
NO SOUND	Rear panel SPEAKER SELECTOR is set to EXT, but external speakers are not connected. Set selector to INT.
NO ON-SCREEN CHANNEL OR OTHER DISPLAY; SLEEP TIMER DOES NOT OPERATE	Strong light striking the remote control sensor may cause the internal microcomputer to malfunction. Change the position of the Projection Monitor or change the lighting so that the sensor is not exposed to strong light sources.

• *Abnormal functioning of this monitor may be caused by lightning, static electricity, or other external interference. To restore normal operation, turn the power off and then on again, or unplug the AC power cord and then plug it in again.*

• *With some VCRs, when the VCR is not in play mode, the screen sometimes fluctuates. This is not a malfunction.*

CARE OF YOUR PROJECTION MONITOR

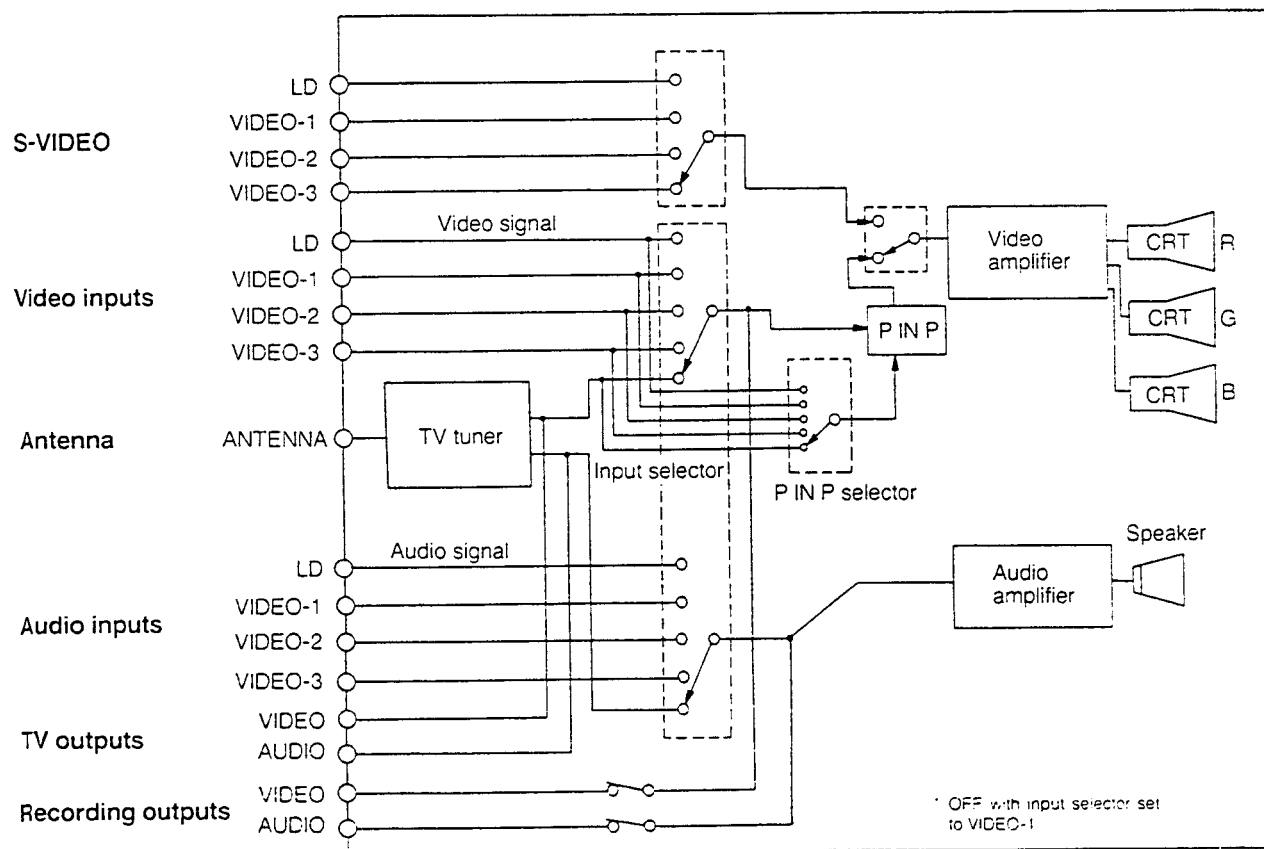
DO NOT:

- Do not use strong cleansers, solvents, polishes, or chemically treated cloths to clean the screen or cabinet.
- Do not touch or scratch the screen.
- Do not fasten or place rubber or vinyl items on the monitor.
- Do not use tape on the monitor.
- Do not put any object on the monitor.

DO:

- Use a soft cloth to dust the screen and cabinet.
- If necessary, unplug the monitor and wipe with a soft cloth moistened with warm water (and mild soap if dirt has built up). Dry with a soft, dry cloth.
- Treat the screen with care to avoid scratches or damage.
- Ask your local dealer to clean the interior of the monitor if maximum picture brightness decreases. This may be caused by dust build-up inside.

BLOCK DIAGRAM



SPECIFICATIONS

SD-P4053

DISPLAY SECTION

Reception system..... American TV standard NTSC system
Screen size 40"
CRT 7" High focus CRT x3
Brightness (White,peak) 600 Foot-Lambert:
[100% Window signal input contrast, bright Max.]
Actual viewing angle Horizontal H = 140°
Vertical V = 50°
Horizontal resolution 730 lines

[Input digital test pattern (900 lines resolution)]

Input terminals 4 video input systems.
S-VIDEO input jacks (Y/C separate INPUT) × 4
4 audio input systems

Output terminals REC OUTPUT (To VIDEO-1):
Video output, audio output (For recording) × 1
TV OUTPUT (Ex. to Audio/Video digital surround
amplifier) × 1

System remote control terminal..... OUT

Input signal.....Video signal: 1.0 Vp-p ± 0.2 V
(75 ohms load)
Audio signal: 500 mV rms

Input impedance.....Video input: 75 ohms $\pm 10\%$
Audio input: 50 kohms or more

Input signal polarity..... Synchronized negative

Output terminal signal ratings:

Output terminals (except VIDEO-1)
Video signal: 1 Vp-p (75 ohms load)
Audio signal: 500 mV rms (100% modulation)

Output impedance.....Video output: 75 ohms $\pm 10\%$
Audio output: Less than 1 kohms

Audio output terminal.....Audio signal: 630 mV rms
(VARIABLE) (100% modulation Volume MAX.)

TUNER SECTION

Circuit type Video signal detection:
PLL full synchronous detection
PLL Digital Synthesizer system
Audio multiplex: BTSC system

Reception channels
VHF: CH2-CH13. UHF: CH14-CH69
CATV (STANDARD, AIR or HRC switchable)
CATV A-6 CH-CCC (W+29) CH

Antenna terminals.....
ANTENNA terminal, 75 ohms UNBAL.
F-type connector (VHF, UHF MIXED)

AMPLIFIER SECTION

Effective output (both channels driven)
10 W+10 W (THD: 1% 50 Hz to 15,000 Hz, 8 ohms)
Tone control: BASS +8 dB, -10 dB (100 Hz)
TREBLE +8 dB, -10 dB (10 kHz)
Built-in speaker system 16 cm (6-1/2 in) full range x2
External speaker impedance 8-16 ohms

ELECTRICAL SECTION, MISCELLANEOUS

Power requirements AC 120 V, 60 Hz
Power consumption 240 W
External dimensions
1031 (W)×615 (D)×1188 (H) mm
40-9/16 (W)×24-3/16 (D)×46-3/4 (H) inch
Weight of main unit 69.0 kg (152 lb 5 oz)

WIRELESS REMOTE CONTROL UNIT

Operation system:	Programmable infrared remote control system
Power source:	Two AM-3, "AA" IEC LR6 1.5 V alkaline dry cell batteries
Attachments:	Two batteries and an overlay sheet
Dimensions:	73 (W) x 21 (H) x 214 (D) mm 2-7/8 (W) x 13/16 (H) x 8-7/16 (D) in.
Weight:	135 g (4.7 oz.) (without batteries)

ACCESSORIES

Operating instructions	1
Warranty card	1
Remote control unit	1
AM-3 "AA" size (IEC LR6 1.5 V) alkaline dry cell batteries	2
Important Safeguards card	1

NOTE:

Specifications and design subject to possible modifications without notice due to improvements.